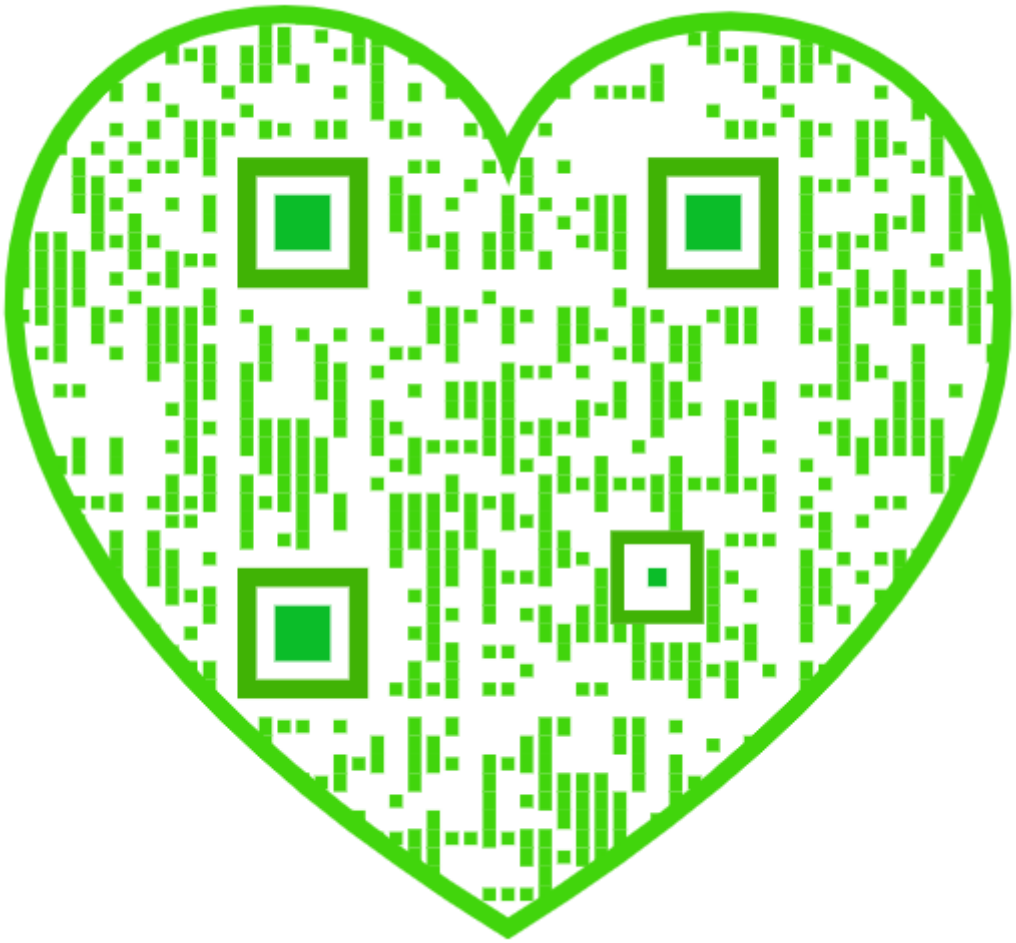

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THE

NEW YORK

COACH-MAKER'S MAGAZINE,

DEVOTED TO THE

LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

EDITED BY E. M. STRATTON.

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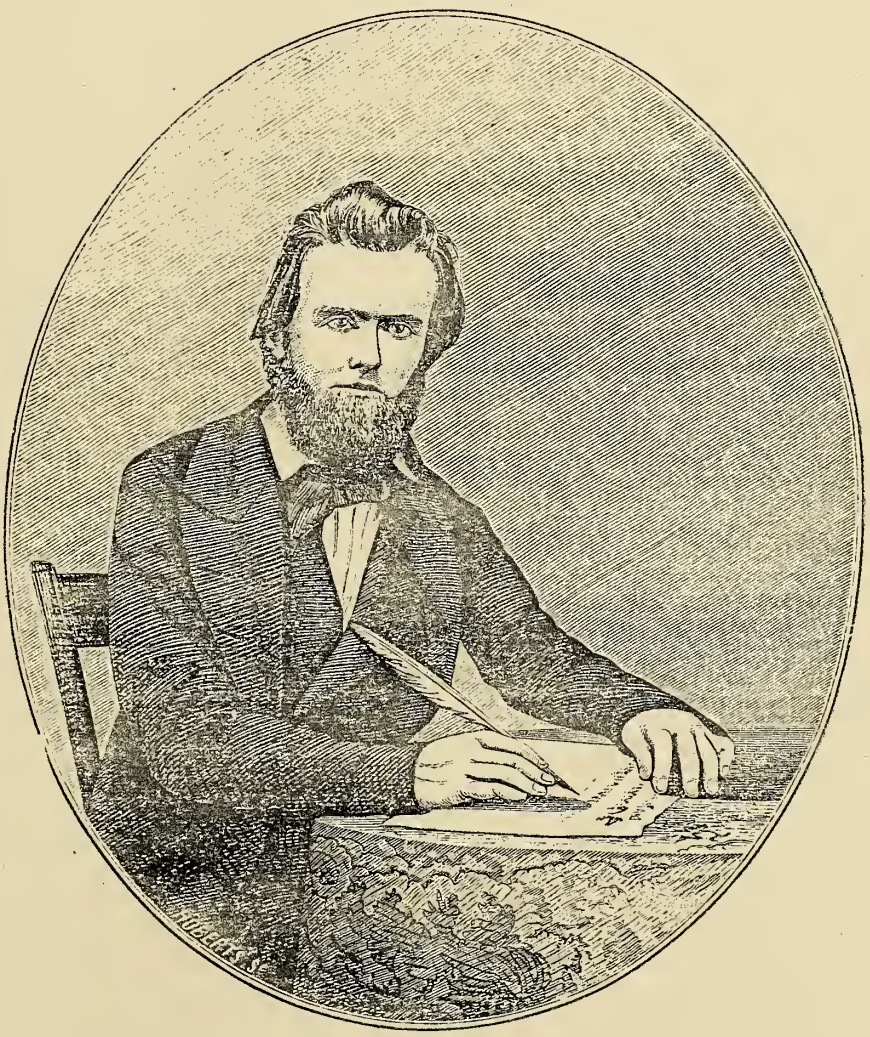

Your Friend
H. S. Williams

Engraved expressly for the New York Coach-maker's Magazine.
May, 1862.

A. McIntosh. Williamson

1863

PREFACE.

When we commenced this volume, eighteen months ago, we did so doubting our ability to make it pay. The United States Government was then making preparation for the suppression of the most wicked rebellion the world has ever seen. Although success has not yet equaled the expectations of the people, still we have such unshaken faith in the strength of this nation that we believe, in the end, victory will crown our efforts. There is no disguising the fact, that the war has exercised a blighting effect upon the business to the interests of which our publication is devoted, especially in the larger cities. This has seriously affected its circulation and abridged its field of usefulness, yet, amid it all, The New York Coach-maker's Magazine still lives, while the larger number of its cotemporaries have long since expired. But we console ourselves with the motto of the craft, in ancient times—*Surgit post Nubila Phœbus*—and take courage.

This Fourth Volume will be found fully equal in value to any which have preceded it. We have here given an unusual number of drafts for light carriages. The motive-power of wheel-carriages, as elucidated by our friend H. H., is also worthy of study, and we do not see how any member of the craft can consider himself proficient without a perusal. To those who love personal history in the disguise of fiction, we recommend Mr. Shirley's "Halford Cruff," completed in this volume. We need scarcely remind the reader that the present volume is almost wholly original. For this we are chiefly under obligations to those literary fellow-craftsmen, of whose assistance we have the promise, in the future.

Many of the writers for the first three volumes "have gone to the wars;" but the most of them have promised to favor us again when they shall have conquered a peace. Upon the whole, we have every reason to be thankful for past favors from the craft—readers and correspondents—while we subscribe ourself—

Yours fraternally,

Ezra M. Stratton.

New York, *November* 1*st*, 1862.

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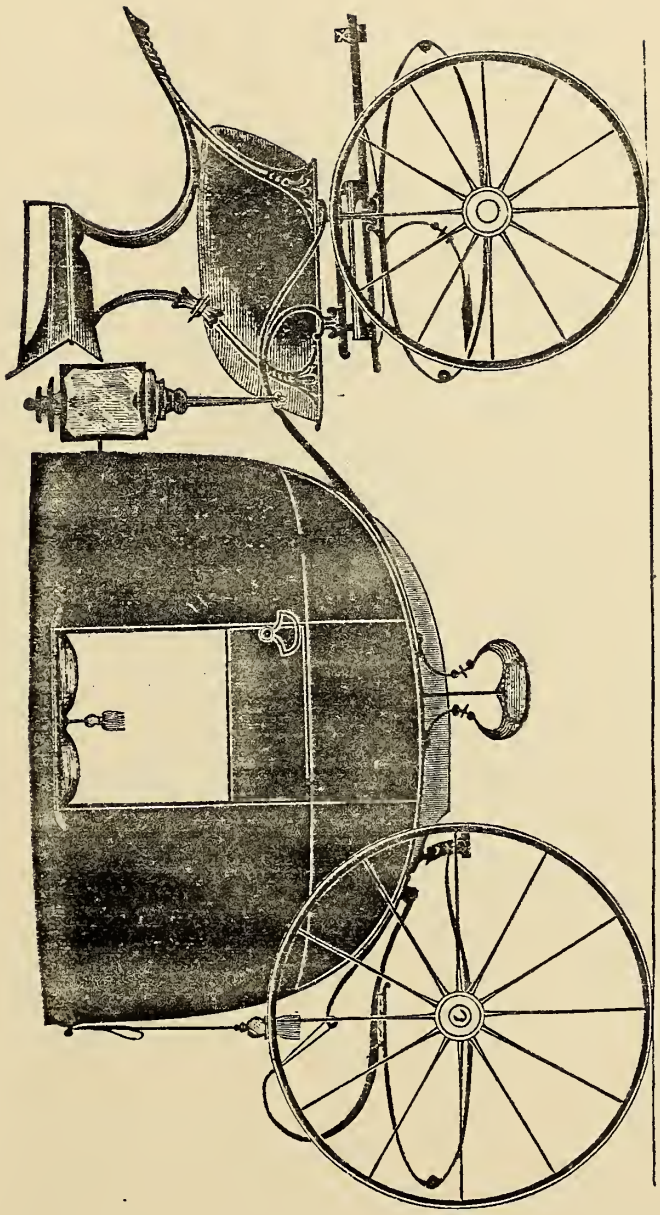
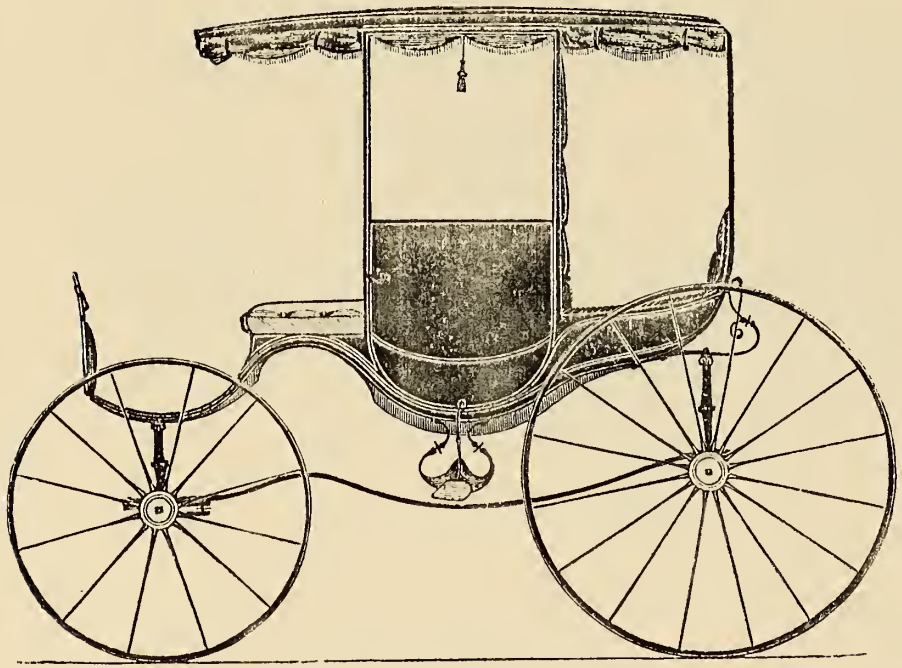


IRON CRANE-NECK CITY COACH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 9.



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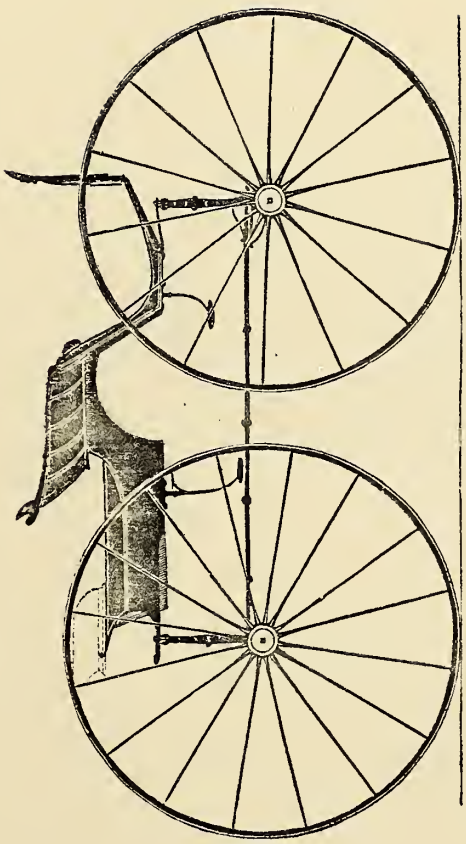

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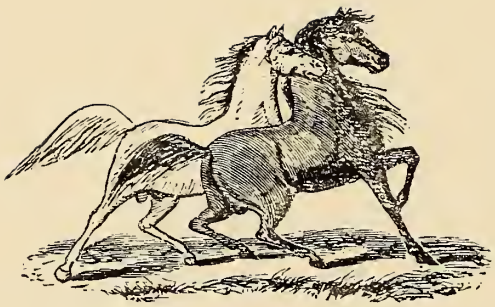

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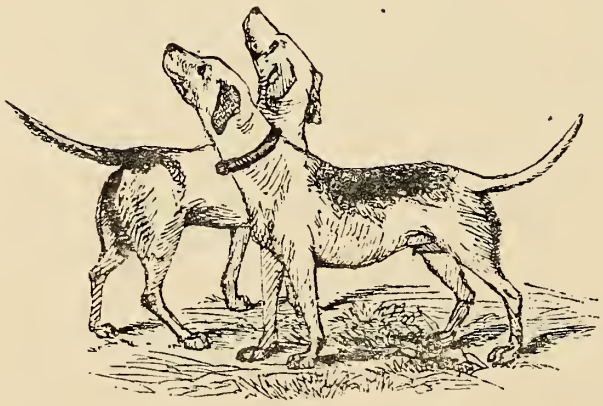


No. 4.

ORNAMENTAL DESIGNS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 11.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, JUNE, 1861. No. 1.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

IS THE SO-CALLED FRENCH RULE IMPERFECT?

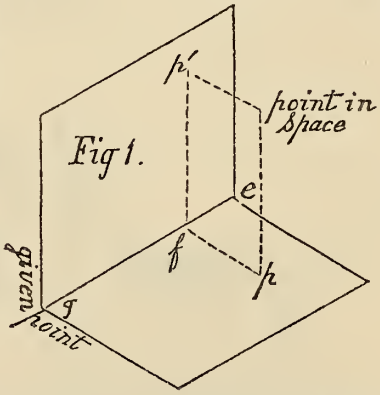
BY R. LURKINS.

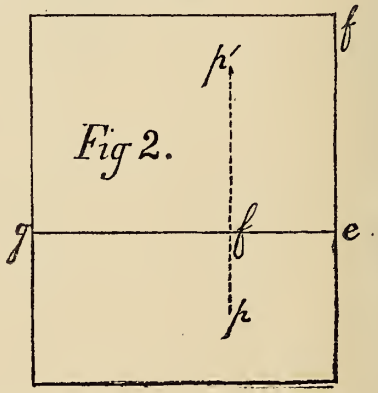
Imperfections of the so-called French Rule—Geometrical technicalities explained—Geometry, as applied to carriage-bodies, defined—The question as to what is the French Rule, enunciated—The writer "throws down the glove" for disputants to take up.

I HAVE received the March number of the Magazine, Mr. Editor, and in it find a letter from a Newark gentleman, "joining issue" with the contents of my letter in the preceding number.* I thank the gentleman for his opposition, for I believe that agitation is the most potent agent in eradicating popular errors; and I repeat that the French rule *is* imperfect, or, at least, it is imperfectly understood. In the course of this communication I shall endeavor to substantiate my position, and reply to the gentleman, where convenience best admits.

In treating of a scientific subject, we cannot well avoid its peculiar technicalities; and, as some of your readers may not be conversant with geometry, perhaps it will not be out of place for me to define such terms as I shall be obliged to make use of.

It is presumed that the terms *point* and *line* are sufficiently understood by all. *Plane* may require defining for some. *This* is a perfectly flat surface, and may extend indefinitely. When a piece of dressed stuff is laid with its face on a perfectly even draft-board, the face of the board is the plane of the face of the piece of stuff, and would continue so were it a thousand miles square, and in any position while the stuff is kept in contact with it. A *tangent line* is a line *merely resting* on a curve, or joining it in one point only. A straight edge laid on the circumference of a wheel is tangent to the wheel. A *projection* is the outlines of a body cast perpendicularly upon a plane. The position of any body or point, in space, may be determined, with reference to a given point, by its projections. Suppose that through the *given* point two planes are passed perpendicular to each other, and a point, somewhere in space, is projected on them. (For convenience, let one plane be horizontal and the other vertical; let the geometrician have one of these planes beneath his feet and the other before him, and let the point in space be in the same angle of the planes with himself.) The perpendiculars from the point to the planes are called *lines of projection* and their intersection with the planes are the projections of the point. Now, if these lines *be projected*, we shall have the line, measuring the *height* of the point, on the *vertical plane;* and the line, measuring the distance of the point *from* the vertical plane, will be on the *horizontal* plane. These lines are called the *ordinates of the point in space.*



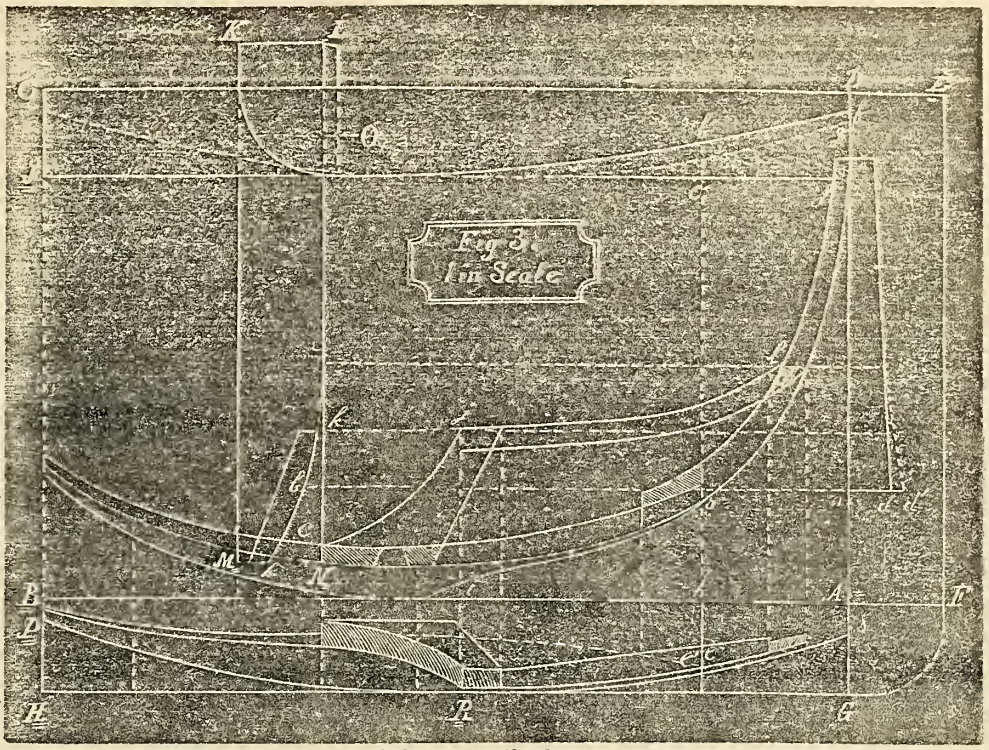


The above diagrams may aid in explaining the foregoing principle,—which is the fundamental principle in descriptive geometry. Figure 1 represents the subject in perspective; while figure 2 simply gives the projections. The line *g f* is sometimes called the *abscissa* of the point, but I shall call it the *longitudinal ordinate*, *p' f* the *vertical*, and *f p* the *transverse ordinates*. A transverse vertical plane might be added at *e f*, on which *both lines* (transverse and perpendicular ordinates) might be projected. Such a plane is indispensable, in most projections of carriage-bodies.

In making the projections of a body, to work from, they should be represented as they would if a side framed and swept off should be deprived of all its timber,

* See p. 199, Volume III.

except the *corners* of the stuff, *which* are represented on the draft, and in this condition laid in proper position on the draft-board: and the draft-board prepared by having narrow boards tacked on its back end and lower edges, so as to form a solid angle at the corner where they meet. Having things thus prepared, place the board so that the rays of the sun shall fall perpendicularly upon it, and the shadow cast on the board will be the side elevation. Next, place the board in such a position that the rays of the sun shall fall perpendicularly upon the board which is tacked to the lower edge of the draft-board, and at right angles to it; the shadow cast on this (cant) board will be the horizontal projection. If all that part of the side before the back standing-pillar be removed, and the board placed so as to let the sun's rays fall perpendicularly upon the end board, the shadow cast will be a transverse vertical projection of the back quarter. A reference to the accompanying diagrams (Figs. 1 and 2) will help to explain this description, which it is hoped will give the reader some idea of orthographic drawings.



It now remains to be shown how these projections can be made geometrically, or by the "French Rule." Here I should like to ask what the "French Rule" is? Is it a simple direction for the application of some principle, like other rules? or is it synonymous with geometry? According to the pretensions of some, it would be the latter; but I think it is the former, and shall attempt to enunciate it in such passages as will be found in brackets, after stating its immediate object.

The surface of the side of a body is a surface of double curvature, and may be made by moving one given curve upon another; and keeping their planes perpendicular to a *given* plane, and in the same relative position to it; *i. e.*, let all parts of the moving curve approach the given plane in the same ratio. (Let one of these curves be the top-rail, the other the standing pillar; and the *plane*, the plane of the face of the bottom side.) The function of the "French Rule" is, to find the perpendicular distance of any point in this surface, from the *given plane*. When these points are found, they may be located in the planes of projection, as shown by diagrams 1 and 2. A sufficient number of these points will serve as guides through which to draw the outlines of the required projection. I will now give the rule, and explain by referring to Fig. 3.*

Having the side elevation represented on the draft-board—[Draw perpendiculars C H and D G from each end of the top-rail; line C D is assumed in this case. At any convenient place draw the line B A at right angles to these perpendiculars, and terminating in them. From the horizontal line B A, measure on the perpendiculars the distances B P and A S, that the outside of the top rail is to be at its extremities, from the plane of the face of the bottom-side; to these points P and S place the curved edge of the top rail, and draw its curve P R S. Draw a line (H G) tangent to the top rail curve at its widest part (R)]. This line will be parallel to B A.

This curve having been arranged, the standing pillar curve must be put in corresponding order. For this purpose—[Make on the draft-board a line (C D) corresponding with the face of the top-rail; draw another line (B A) parallel with this, beneath the draft of the body. At any convenient place between these horizontals, draw two perpendiculars (K M and L N, or D A and E F) at a distance from each other equal to (B H) the parallel lines on the cant-board. Between these perpendiculars, and at right angles to them, draw a line (M N) on a level with that part of the bottom-side which is under the widest part of the top-rail.]

The part to be projected on the plane K L M N.—[On this line (M N) measure from the line (K M) representing the plane of the face of the bottom-side, a distance equal to the required thickness (M *h*) of the under-side of that part of the bottom-side projected; through this point (*h*) pass the curve of the standing pillar, while it should nearly coincide with its perpendicular tangent (L N) in the upper two feet of the side.] It must be kept in mind that the upper shoulder of the standing pillar should be cut at the height of the line C D, for any place, back or front, except when otherwise indicated by the third curve.

The curves being thus arranged, we are prepared to determine the *perpendicular distance* of any point, in the required surface, from the plane of the face of the bottom-

* The reader will perceive that this figure is an open body; but a *standing top* is alluded to, for the purpose of making the application of the principle general. R. L.

side; *which* may be expressed in the following general terms. The distance of any point, in the side surface of a carriage body, from the plane of the face of the bottom-side, is equal to its most distant point (*i* R) diminished by the sum of those portions of the *ordinates* of the required point, *which* are included between the generating curves and their tangents. (When the top-rail and standing-pillar curves are spoken of, collectively, they will be called *generating curves*).

Now a little more "French Rule:"—To find the distance of the point *j*, from the plane of the face of the bottom-side—[Draw the ordinates of (*j*) the point (*j k* and *j* R); take the distance of the part of (*j k*), the longitudinal ordinate, included between the standing-pillar curve and its tangent,—between the points of the dividers; set it off on the other ordinate, inside the top-rail curve, at R, and you have the projection of the point (*j*) sought. Any other point may be found by a like process. Having the outside projections of the ends of the arm-rail; measure in from these points its required thickness, and join the points last found, for the arm-rail face; which, being perpendicular, should be represented in the horizontal projection by a single straight line, but the points for its outside lower edge must be found separately, and will be projected inside the upper edge; owing to the turn under. The arm-rail and corner pillar should be swept off, before they are framed together, and gaged from the outside.] If the *frame stuff* is properly dressed, and marked off, the distances projected can be pricked on *that* as easily as on the draft-board. The part relating to dressing and framing will have to be considered on some other occasion; but I will here state, that—[The stuff should be so *dressed and framed* that the lines on which the measurements for thickness are made should be, when in the frame, perpendicular to the plane of the bottom-side face. The distance that the standing pillars are framed from the face of the bottom-side, will be governed entirely by the generating curves; but they (the standing pillars) should be set a quarter of an inch inside the above-described surface. The body is generally narrower at the front standing pillars than at the back, consequently the front pillars are framed nearer the face of the bottom-side than the back ones are. *In locating the corner pillars we must mind to have them far enough within the surface to give them sufficient thickness, and have their faces perpendicular.*]

The foregoing description comprehends all, I believe, that properly belongs to the "French Rule," although some parts require more particularizing, especially the latter part. The description which I have given, I am aware, differs in some respect from common practice; but at the same time I believe it to be more perfect and scientific; but if any one sees fit to *dissent* from me on these points, I will agree to discuss the subject with him at any convenient time.

(*To be continued.*)

HACKNEY COACHES.—According to Gibson (Codex, Vol. 1, p. 240), hackney-coaches at one period were restrained from being hired and driven on the Sabbath, in England. This law was, however, partially repealed in 1693, when one hundred and seventy-five were to be licensed for Sundays, so that the whole number of seven hundred might be employed successively.

For the New York Coach-maker's Magazine.

DISHED COMPARED WITH STRAIGHT WHEELS.

THE readers of THE NEW YORK COACH-MAKER'S MAGAZINE, on page 145, of volume III., have had their attention called to this subject, by an article credited to *The Carriage-Builders' Art Journal*, in which the writer's mind seems to me to be very much befogged, to say the least of it. I consider the subject to be one of great importance to the community, if not to carriage-builders themselves. The dish to wheels, and the taper to the arms, were originally very ingenious inventions, and strictly in accordance with the laws of mechanics, which will always remain the same, no matter what our wishes may be for a change, so as to agree with the caprice of fashion. The writer of the article alluded to has divided his subject into four parts, two of which I will review, because, by so doing, some common errors can be refuted, and some truths established.

He says, the advantages of dished wheels are as follows:

First, there is a tendency to keep the tire tight.

Second, the bearing of the wheel and axle-box is against the collar of the axle instead of on the axle-nuts.

In arguing his first proposition, the writer speculates on vibration rather queerly, as follows: "There is always more or less vibration in a carriage wheel, as it passes over the road; now, with an upright wheel, the vibration would occur on both sides of the wheel. Any practical mechanic is aware that if his tenons are continually moved backward and forward in their mortises, they must inevitably become loose; and this is what would happen to the spokes and stocks of an upright wheel." Further on, he says: "By slightly coning (dishing) the wheel, it acquires many of the strong points of the arch; in the first place, the vibration is very much reduced, and, in running, as it were, hard on the axle-collar, the woodwork is pressed tightly into the tire, which will remain tight for a longer time."

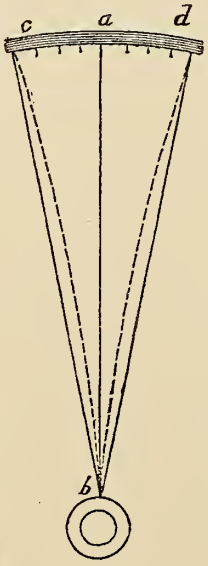


Fig. 1

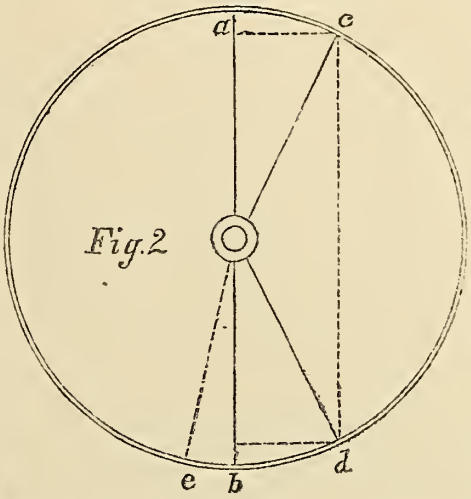
Now let us understand what is meant by vibration on both sides of a wheel. Suppose *a*, Figure 1, is an elastic rod, fastened in a mortise, *b*; take hold of the end *a* and draw it to *c*, then let it loose, and its elasticity would carry it back towards *a*. When it had got to *a*, the propelling force that it had acquired would force it on to *d*, then the elasticity would carry it back to *a* again, and the propelling force that it would acquire would carry it on towards *c*, perhaps to the first dot, next to *c*, and in that manner it would go backwards and forwards until it would finally rest at *a*. This would be vibration, which, by constantly repeating, would loosen the tenon, *b*. But can the spokes in a wheel have any such vibration? I think not. Draw the end of the rod *a* to *c*, then fasten a strong iron rod across the curve or angle at *b* and *c*, and then you have destroyed its power of vibration. Why? Because the rod fastened at the ends *b* and *c*, and running

across the angle or curve of the dotted line, is not as long as the curved or dotted line, and when the elasticity undertakes to straighten the curved rod, it makes a strain lengthwise on the rod which is fastened at the ends of the curve. Now this performs the same office as the tire to the dished wheel. If you undertake to bend the rod towards the curved line, you find it has assumed the properties of a brace or arch. We will soon see that the dished wheel was made in accordance with this principle. As for a wheel vibrating on one or both sides, we know it to be an impossibility. The ground the wheel runs on would hold the lower side of the wheel from any sideway movement, if it was inclined to make any such movement. The apparent vibration a wheel has is the vibration of the axle. There is not and probably cannot be any such invention as will keep the axle from vibrating.

The writer's ideas in relation to the properties of the dished wheel run in a singular direction; for instance, the way he accounts for its keeping the tire tight is in this wise: the wheel, "in running, as it were, hard on the axle-collar, the wood-work is pressed tightly into the tires, which will remain tight for a longer time." I cannot see why a dished wheel should run (or wear) any harder on the collar than a straight one. If we want to make a wheel run hard on the collar of the axle, we incline the point of the arm forward, which holds the forward side of the wheels nearer together than the back, by which operation, when the carriage is put in motion, the wheels are inclined to run together, and are continually crowding on the collar. Reversing the arm, brings the crowding on the nut or point. Either of these positions should particularly be avoided. The weight of the carriage and load pressing down on the arms and axle-box, cannot be avoided; but the side pressure can, by making the wheels run straight forward, instead of partly sidewise. A carriage that *held the tire on*, in the way the English writer speaks of, would be a poor thing.

The arguments used in the second division of the Journal's subject are the climax of stupidity. He says (2): "By using an upright wheel on a horizontal axle-arm, there would, in use, be as much tendency for the axle-box to bear against the nuts in front, as against the collar behind. Now, it is of the greatest importance not to throw any unnecessary strain on the nuts, as the point is the weakest part of the axle, and the nuts would not, for any lengthened period, bear the strain, without stripping off the threads of the screws, and dropping off." The writer finally contrives a way whereby this strain on the nuts is *reversed* on the collar—as he thinks. The nut on each arm would bear a strain of at least two tons; now let this strain be taken off the axle-nuts and put on the axle-collar, which would make eight tons for four wheels, pressing them together. Did the writer think how many horses it would take to draw his carriage?

In this country a style seems almost universally to prevail, of making wheels straight on the face side, and a very little crowning on the back side. This is a great mistake in our mechanics, which I should be glad to see corrected; but I am afraid our English friend's arguments in favor of dished wheels are not as good as his intentions. I think their superiority for strength and wearing can be accounted for in the following manner. Spokes, when set angling, make the diameter of the wheel smaller than when set straight. For instance, in Figure 2, the diameter from



c to *d* is less than from *a* to *b*. A wagon is always so constructed that when a strain comes sideways on a wheel, it is always from the out, or face side, and on the bottom of the wheel, crowding it in. If you raise the left side of a wagon above the right side, you move the centre of gravity from the left nearer to the right, and the right wheel receives all the weight that is taken off from the left. In Figure 2, the strain would come at *d*, crowding it towards *b*, and it would not require much load to carry it to *b*, and even break your best hickory spokes, if it was not for that very ingenious contrivance, the tire. That is a strong iron which will not allow the diameter of the wheel in any way to be increased, It holds it at *c* and *d*, and if the side *d* is bent towards *b*, it must enlarge the diameter of the wheel, consequently the strain comes on the tire, drawing it lengthwise, and as it refuses to part, it, in turn, throws the strain back on the ends of the spokes, and they operate as a brace, instead of a lever. This is a beautiful arrangement of the law of mechanics, by which the utmost strength of the wood and iron in a wheel is obtained.

Now, what is the modern improvement of this good old style? Why a straight wheel! Put the strain on a wheel at *b*, in Figure 2, and bend it towards *e*, and you have diminished the diameter of the wood part of the wheel; loosened the tire from the felloes; almost entirely lost the support you could have got from the tire; thrown the strain sideways on the tenons of the spokes; and, in fact, abandoned every strong point of the wheel for the weakest!

I have had an opportunity, for thirty years, of observing and comparing the difference in the wear and the strength of the two kinds of wheels, and it is my firm belief that the present style of making wheels sacrifices from one-half to nine-tenths the wear of all wheels made. Also, I have a wagon, in the wheels of which the spokes are drove for one-and-a-fourth inch dish on the face side, which has now been in use for six years, and the tire has never been re-set, and I do not expect it will ever be necessary to re-set it.

H. H.

BERLIN, Wis., January 20, 1861.

CLARENCE CLIFFORD (H. S. Williams, Esq.) has promised us an article from his facile pen, which we hope to commence in our July number. We intend also to gratify the wishes of a large number of our readers by presenting them, at the same time, with a portrait and biography of the gifted author. We are quite certain that the friends of our Magazine will appreciate this effort to please them.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

BY THE EDITOR.

Carriages, of some description, have been found in connection with the history of every nation making the least claims to refinement or art, from a very early period since the creation. This we have seen in the chapters already published in this work, entitled Coach-making Historically Considered and Incidentally Illustrated. Indeed, the coach, which it has all along been supposed to have dated no farther back than the days of Queen Elizabeth, would seem to have been invented more than four thousand years ago. John Camden Hotten, of London, has in his possession some rare Egyptian manuscripts in the Demotic character, on one of which is a curious drawing of a coach on four wheels, showing that such luxuries were in use at an early age. It is not our design to repeat what we have already presented in these pages, but rather to give some additional details in chronological order, and to illustrate the same with such appropriate engravings as cannot fail to interest every genuine lover of his craft. In these remarks, for the present, we shall confine ourselves to a History of the Rise and Progress of Carriage-building in England.

As among other nations, our Saxon ancestors were necessitated at first to employ such rude and illy constructed contrivances as their unskilled mechanics were able to furnish to such as might require wheeled vehicles in the cultivation of the soil. This was a rude kind of cart, some idea of which may be formed from the engraving here given, taken from the Cotton MS., Claudius, B.5, in the British Museum. Many of the carts in Normandy and other continental districts, at the present day, are but little better. In fact the science of coach-making is so very "mysterious" and complicated in its very nature that it has not—like the fabulous Minerva—sprung into existence fully perfected, but has by degrees reached its present state through much exercise of mind and struggle of ingenuity during a "conflict of ages." As evidences of this position, the remarks which follow may be studied with profit.

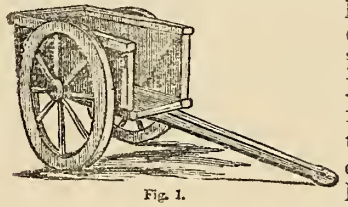


Fig. 1.

When in A. D. 53, Cæsar invaded Britain, he found his opposers well supplied with a clumsily constructed kind of war chariot—an engraving of which is given on page 185, volume I.—that were so adroitly and skillfully used by the ferocious natives that they very much annoyed Cæsar's army of expert and well-exercised soldiery, the use of which in war were little used in the Roman army. Among the Britons these chariots are described as being of two kinds, the *covini* and the *esseda*; the first very heavy, and armed with scythes; the latter much lighter, and consequently better calculated for use in places where it would be difficult to employ the heavy and more clumsily formed *covini*. Such was the case when Cæsar's army landed upon the coasts of Cornwall, the shores of which were precipitous and rugged. It found itself met by a brave and stalwart band of British cavalry, supported by a great number of *essedæ*, to oppose this hostile landing. Some idea of their numerical strength may be inferred from the circumstance that Cassivelallnus stationed four thousand of these chariots as a corps of observation to watch the movements of Cæsar, after he had succeeded in landing. Some of these chariots were so contrived that the warrior dismounted from his chariot during a battle and ran along a pole attached to the side, from whence, or from the yoke, he engaged the enemy, again to retire into his chariot when prudence or choice should dictate.

Subsequently, about A. D. 61, when the Romans had shamefully abused the power they had obtained, by insults against the people, Boadicea, a brave and spirited Queen of the Iceni, gathered together an army and undertook to exterminate or drive these Roman usurpers of the government out of Britain. In this attempt numerous chariots were used, and we have many reasons for believing that at this period the natives of the British Isles were in advance, with chariots, of even the Romans themselves. Doubtless some rude sort of a cart was in use, perhaps the very prototype of that rude kind of cart in use in some parts of Wales at the present day. This is hung on very low wheels, and is very little better than a hand-barrow on wheels, to which the animal is harnessed at the extremity of a long pair of shafts or poles. This, it is supposed, is an example of the earliest wheel-carriage known in the British Islands.

Strutt, in his "Manners and Customs of England," mentions a kind of chariot in use among our Anglo Saxon ancestors which it was supposed was derived from the ancient British *essedum*. Evidently some progress in carriage-making was made among the Saxons. In an illuminated Saxon manuscript, in the Cotton Library, there is found an illustrated delineation of a slung carriage. The artist, in illustrating his subject—the story of the meeting of Joseph with Jacob—seats Joseph in a kind of hammock, suspended by iron hooks from a frame-work of wood, and mounts it on four wheels. This he probably could not have done without some knowledge of their existence.

It was a long period before carriage-making in England assumed any definite improvement worthy of particular note. Although carriages had appeared under various names and shapes on the continent of Europe, it was not until the age of Elizabeth, 1564, that our history becomes reliable. Harrison, speaking of the vehicles then in use, calls them "cartes," and probably they were worthy of no better name. In his Description of Britain, prefixed to Hollingshead's Chronicle, he says: "It is to be noted that our princes and nobility have their carriages commonlie made of cartes, whereby it commeth to passe, that when the Queen's Majestie doth remoite [remove] from anie one place to another, there are usuallie four hundred carewams which amount to the somme of two thousand four hundred horses, appointed out of the countie adjoining, whereby her carriage is conveied safelie unto the appointed place."

The carriage of Queen Elizabeth, as spoken of by Stow in his Chronicles, will be found fully described on page 3 of our second volume. In a curious old print by Stalfnagel, preserved in the palace of Nonsuch, published about 1582, there is a representation of the coach in which is seated the virgin Queen, with her ruffles and bodiced dress, giving a very good idea of Her Majesty's queenly dignity. This old engraving is very interesting as faithfully representing the earliest English vehicle dignified with the name

Fig. 2.

of a coach. This, however, instead of filling the mind of an observer with any exalted idea of the ingenuity exhibited by the mechanics of the Elizabethan age, reminds him of some imitation of the ancient chariots used on the stage in modern times. The body is of a lumbering kind, clumsy in all its details,—which features have not yet been entirely abandoned by her countrymen. In fact the body of this coach might answer in some cases as a model for a funeral car, with its plumes and ornamental display. The Dutch-looking driver, probably William Boonen, the Queen's coachman, with that sober character attributed to his countrymen generally, is seen mounted on the capacious box, in front, driving leisurely along, as if pleased with himself and satisfied with the gracious permission he has to serve Her Majesty, even in a mean capacity.

In another coach, fig. 3, but of a different form, and presenting the same clumsy appearance, but more agreeable to the tastes of a modern coach-maker than the one monopolized by England's "good Queen Bess," follows

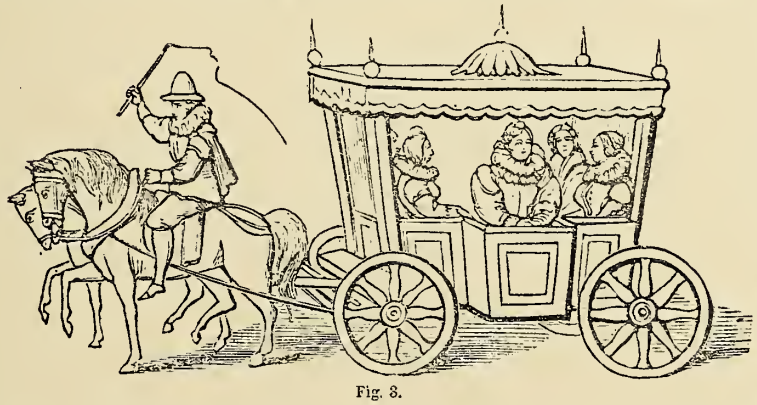


Fig. 3.

her attendants. One peculiarity in this figure is the projection at the side in the form of a box, one of which was on each side, called the boot, in which is seen a grave-looking female, who, under England's petticoat reign, is supposed to be filling some exalted station. In consequence of the front of this coach being closed with a pannel, and no seat provided, the driver is obliged to either "foot it" or else mount one of the horses as represented in the engraving. It has been stated that the carriages of Queen Elizabeth could be opened and closed at pleasure, but this could hardly have been the case with these of which we have presented illustrations. Probably such were afterwards provided as an improvement. In one of the accounts of her "Progresses through England," we learn that when she visited Narkworth, she caused "every part and side of her coach to be opened, that all her subjects present might behold her, which they most gladly desired."

The author of the Fairy Queen, cotemporary with Elizabeth, makes mention of coach, chariot, and wagon in his work, from which circumstance, no doubt, they had become the "*heroes*" of the hour. They had now become very numerous, and so much did they injure the business of the watermen on the Thames that "diatribes" without stint were hurled at them. One writer went so far as to affirm that treason and coaches were both hatched from the same nest, alluding by treason to the "Powder Plot" of Guy Fawkes.

(To be continued.)

POPULAR ERRORS IN ENGLISH CARRIAGE BUILDING CORRECTED.

LEATHER BRACES TO THE BACKS OF SPRINGS.—But few persons would undertake to give a practical reason for the application of leather straps to the backs of springs, with the exception of those to spring-carriages, where they are indispensable for suspending the body; but in the case of grasshopper and elliptic springs the object is not so clear. They do not add to the action of the spring; on the contrary, they confine the plates by a severe pressure, and prevent that rebound essential to elasticity, particularly so where the strap or brace turns abruptly round the end of the spring to meet the fastening underneath. They look extremely heavy and clumsy, and destroy the clean outlines which so much please the eye. That they afford safety in the event of a spring breaking, and prevent the fall of the body beyond a small deviation, is, in truth, the principal advantage. To deaden the sound from the rattle of the street is one effect; but that object may be better attained by means of the improved round-robin brace at the ends only, which allows the full stretch of the spring, without impeding the action, and thus rather assists the elasticity; but in all cases they should hang at a small angle, and in no case be perpendicular.

PLACING A HORSE NEAR HIS WORK.—A very strong opinion prevails that a horse cannot be too near his work; and, to this end, he is drawn up so near the carriage that he has scarcely room left for his heels to clear it. At a slow pace this may not happen; not so at a quick rate, when he stretches out far behind, and anything touching him then may result in the most serious consequences. He is likely to touch the dash-board, particularly in turning round. The difference in placing a horse six inches forwarder would not be felt; while, by so doing, all the evil consequences would be avoided, and the power of the animal would not be lessened. A horse cannot have too much freedom for the use of his limbs, and all interference or impediments, by tight lacing and close-drawn bucklings, should be avoided as much as possible, as they cramp the energies of the animal and so diminish his power. It also irritates, and a spirited horse, by the constant excitement, will assuredly be more likely to do mischief if suffering from an undue pressure. The imaginary, or, if any, the very slight advantage gained

by placing him so near his work is more than counterbalanced by the evil consequences.

The Wheels Close Together.—This is considered so desirable a point, that the hind and front wheels are brought so near together, as, in the one case, to leave scarcely room for the opening of the door, and, in the other, scarcely room to turn on the lock without touching the front of the body. Shape and beauty of form are thus lost in the body, which is hidden by the hind wheel: no proportions can be seen—not even the mode of attaching the back. A few inches more room would afford some little opportunity of showing a more artistic form of body than that to which we have so long been accustomed in our Broughams. Advancing the hind wheel so far leaves no scope for effect, but gives a short, stiff appearance, totally at variance with freedom of style. Fashion and convenience reconcile us, but real good taste demands something more in accordance with grace and freedom.

Difference in Length of Axle-trees.—Formerly carriages were not considered properly construeted unless the front and hind wheels tracked; but modern practice entirely abandoned this principle. Attention to the subject of draught has demonstrated that a long front axle-tree is a great disadvantage—not only increasing the draught, but producing other inconveniences; the principal one being, that to render the lock-under more secure from touching the body, the front wheel would be placed considerably in advance, leaving a most unsightly space behind it; whereas, by shortening the axle-tree, the distance for the lock is materially diminished, and the line of draught assumes a more triangular form with the front of the pole or the center of the shafts, giving greater steadiness to the motion of the carriage, and relieving the shoulders of the horse from the strain at right angles caused by the greater width between the front wheels.

Lowering the Back of the Seat.—Much comfort would be gained inside by lowering the back of the seat two inches instead of one, as at present. The knees would be more elevated, and a more agreeable sensation given to the back, by being slightly pressed against the back reclining squab. The circular sofa backs are not so much in use, it being found that they produce an uncomfortable sensation in turning the sitter towards the center; and to this feeling may be attributed the abandonment of the circular-back Broughams.

Two-wheel Carriages — Whalebone under the Shafts.—The use of whalebone under the shafts has for a long time been understood as conferring strength; but this is not so. The only service in whalebone is that, in the event of a shaft breaking, and the carriage falling to the ground, the whalebone, by its natural tenacity, either prevents the fall, or interrupts its suddenness, and thereby avoids the driver being thrown out. The advantage in using it is very slight, as lance-wood (the only shafts to which it is attached) is sufficiently elastic in itself, and seldom breaks without a long splinter, unless the wood is very old.—*Car. Builders' Art Journal.*

The County Liable for Damages from Highwaymen.—1668. A coach on the way from Buckinghamshire, being robbed by highwaymen, the passengers brought an action against the county, and recovered damages to the amount of their loss.—Swinex, *Hist. of the Baptists*, vol. 2, p. 362.

Home Circle.

For the New York Coach-maker's Magazine.

JUNE MEMORIES.

BY ANNIE M. BEACH.

The roses of another June
Are blooming round my way:
Fair censers filled with rich perfume
Swing from each dewy spray;
And far and dim the cloud-reefs lie
At rest in the soft summer sky.

How beautiful! The month of dreams,
And poetry, and song!
As to the sound of unseen harps
The still hours move along,
Then vanish in the west away,
As night infolds the weary day.

I mind me now of other Junes—
And back, with silent tread,
Fond Memory goes to gather up
The roses that are dead;
But as she binds them round my brow,
I feel the thorns are sharper now.

For there were eyes that met my own,
And voices low and sweet,
In the bright Junes of other years,
That now no more I meet.
Where are they? Some are lost to me,
That sleep not 'neath the willow tree.

The world is wide; and Death and Change
Alike are powerful here;
Both steal the roses of the heart
And twine them round the bier.
But on the far-off Eden plain,
They say, our lost shall live again.

For the New York Coach-maker's Magazine.

OUR CHARLIE.

BY HEBRON BELL.

Death has transplanted
This rose-bud of ours,
To the gardens enchanted—
The gardens of flowers,
Where the hoar-frost of sorrow
Will nevermore come,—
By the rivers immortal
Forever to bloom.

Sad heart, cease repining,
And tear off thy shroud;
The stars are still shining
Beyond the dark cloud;
And angels are singing
As upward is borne,
By the zephyr-wing'd seraphs,
The spirit we mourn.

Oh! the richest and rarest,
By warm hearts held dear,
The sweetest and fairest
Of all we love here,
Through Death's gloomy portals
That rise o'er the tomb,
To the gardens immortal
Must pass ere they bloom.

Ere his young life was molded
He sank to his rest,
With his tiny hands folded
Above his pure breast;
And on the white tablet
That marketh his tomb,
In *faith* we'll inscribe it—
He's only gone home!

For the New York Coach-maker's Magazine.

LOST LIZZETTE.

BY ANNIE M. BEACH.

Not many miles from where the Iowa mingles its musical murmur with that of the far-famed Mississippi, Charles Everson had reared his rustic cabin, and thither brought his gentle, trusting wife, who still had smiled amid her tears, as she bade adieu to her childhood-home far in the pleasant East, and their little blue-eyed, golden-haired Lizzette, just learning to lisp the baby-talk of two years.

Those times are now numbered with the gone-forever; and it is hard to realize that where now the busy hum of progress rises from many a thriving town, and pleasant farm-houses meet the view, once the Indian wigwams stood, and the cots of the whites were "few, and far between."

"I should be quite contented here, now we are at last settled," Mrs. Everson said to her husband, as they sat at breakfast, one bright morning in early June, some two months after their arrival; "quite at home, if it were not for my fear of the Indians. Only yesterday some of the tribe were passing, and one of the women called at the door for water. Lizzette was delighted with her bead-wrought dress and moccasins, and the woman stroked her curls, and called her Wild Flower. Since then I have been so fearful! Oh, Charles! only think: what if she should be stolen?"

But the bold heart of the young farmer felt no fears. "Tell mamma the Indians do not want blue eyes and golden curls in their camp;" and so the matter dropped.

Two weeks have glided by. The morning sun shines clear and beautiful. The young wife stands at the low door of her new home. She hears the voice of her husband, as he whistles merrily an old tune they have often sung together in the dear old home. She catches a glimpse of Lizzette's bright curls, as she moves like a fairy among the wild flowers; and then fancy draws bright pictures of the future. Two years more, and they are going back to see the dear ones they have left at home. Lizzette must not forget all the genteel ways her young aunts taught her. The pearl-set locket and necklace her name brought, must not be worn every day now,—when she comes in, it must be unclasped and lain away for safe-keeping. So the morning hours went by, and noon came on,—but where are the golden curls that danced among the wild flowers? Gone! It were useless to tell of the anxious search, and how hopes and fears mingled together, and then of the utter despair, when, far away on the still prairie, they found a knot of faded, sun-scorched curls; a well-remembered basket, filled with wild flowers; and, just beyond, the remains of an Indian-camp fire; which told the fearful truth that Lizzette was stolen by the Indians.

It was not pleasure, but the voice of death, that called Charles and Agnes Everson back to the old home again. "Will they be here to-day?" was the question often heard from the lips of the dying one, and now they gently break the news,—"they are here, Ellen."

Ellen Marshall and Agnes Everson were sisters. Two years before they had parted, each leaning on the strong arm of love—each looking forward to long years of happiness. Now, how changed! One is widowed, and dying—the other, childless.

"Brother—sister," said the sufferer, "I have prayed for this hour—that I might see you together once more. I shall soon rest beside my husband; but Herbert will be an orphan. You will not refuse my last request? Be to him father and mother!" And they promised.

The happy heart of childhood cannot long know grief, and the bright, handsome boy of seven soon forgot his loss in the light and love of his new home. In the hearts of his new parents he soon occupied, if not the same, yet an equal place with the lost Lizzette. So the years went by, and, in their flight, changes came. Thriving towns, and pleasant cottages have risen around. The rustic cabin has been exchanged for the tasteful farm-house; broad fields are cultivated, and barns filled to overflowing. Yet, with these changes, Charles and Agnes Everson have grown old,—not so much from years, as from conflict with toil and care.

"You must give up work, now," Mrs. Everson said to her husband. "Herbert is so faithful, and has such a business way, there's no use in your worrying. I think it's best you've sold the Missouri farm, and so does Herbert, too, I think,—for his letter says, though summer has passed pleasantly, now that winter is coming he begins to think of home. Two weeks more, and he will be with us again."

How little we know of the future! Ere those two weeks were numbered, Herbert Everson was summoned to the death-bed of his father.

"We little thought to meet thus, my son!" said the dying man. "Come closer; I have not long to live. I leave your mother to your care. In my will I have named you as my only child. But listen! Last night I had a dream: Lizzette was found. The vision was perfect,—I saw you all together. Oh! if this should be so, dear Herbert!"

The young man stooped, and kissed the pale brow. "Be assured, dear father, as you have dealt with me, so would I deal with my sister."

There came a look of peace over the still white face. "Agnes!—Herbert!—Lizzette!" They bend closer to catch the words, and then thought he slept. But this was death.

Gloomily the months of winter wore away, and spring again woke the wild flowers, and called back the birds. It had ever been a fondly cherished hope of Mrs. Everson that Herbert might marry from among the daughters of her people; and that her place as housekeeper might be filled by some favorite niece, or the daughter of some well-remembered schoolmate. But the vision faded when Herbert came to tell her the secret of his heart;—how, far away, beside the bright Missouri, he had met and loved the young orphan, Lizzie Holden. "Will you not love her, too, dear mother?" And Herbert had ever been so good, so kind, she could not grieve him—could not tell him that his happiness brought her pain.

Again, as in the years gone by, Mrs. Everson stands

at the open door-way; but oh, how changed are all things! Just eighteen years that very morning Lizzette had gone from them to return no more. She thinks of the *past*, then of the *present*. "Herbert and his wife should have been here last night." There came a shudder. "What if he, too, should *never come?*" A moment more, and there comes the sound of pleasant voices, and Herbert Everson presents his bride.

"Mother, dear mother, may I claim you as such?" and soft young arms are twined around her neck, while tears and kisses mingle together. The light traveling-hat falls back, and a wealth of golden brown curls covers the slender, well-formed shoulders. Oh, how beautiful! The ice melts from the mother's heart, and she wonders not at her son's choice.

"Have you shown this to mother?" Herbert said to Lizzie, as the three sat in the pleasant parlor after dinner, and he unclasped and slid from her chain a tiny pearl-set locket.

"No, really; and yet I suppose I should, since it is all I have that tells of my early history."

"Of your early history?"

"Did Herbert never tell you that I was a foundling? The kind lady whose loss I mourn as a mother was in no way related to me. I was but a baby of two or three years when given her by an Indian woman. My hair had been closely shingled, and I was dressed in Indian style. They called me Wild-flower, and the only remnant of civilization I retained was this pearl-set baby necklace and locket, which the Indians supposed to be a charm, and dared not remove. Oh, how I have longed to solve the mystery!"

She ceased, for Mrs. Everson had fainted. It was Lizzie's soft hand that bathed her brow in the cool water Herbert brought; and, when sense again returned, it was still Lizzie that bent over her.

"Oh, Herbert," she murmured, "do I dream? or is this the realization of your father's vision? Lizzette, my long lost child, I am your own mother!"

During Herbert's first acquaintance with his bride he had only known her as Lizzie Holden, an orphan. That this was not her true name, or the particulars of her history, he never learned until after his father's death. Then, fearing to awaken hopes which might at last die in disappointment, he had resolved to remain silent, letting facts speak for themselves when his mother and bride should meet. By some strange chance he had never learned that, when stolen, his cousin wore either necklace or locket.

"All that the glad surprise might be more complete, dear Herbert," chimed in a musical young voice.

And thus, as the evening hours came on, the story of the lost was told. The void in the heart of both mother and child, which years had not sealed, was filled at last; and as Herbert Everson clasped his young bride to his heart, he murmured, "Dearer than ever now, *our lost and found Lizzette!*"

LOVE IN THE POST-OFFICE.—The clerks in the United States Post office often find themselves amused with the letters coming under their notice. Here is a specimen:—

> Oh, Julius O'Flaherty! peep into me.
> And see the love waiting to jump out at thee;
> Break the seal carefully—handle with care,
> Commonwealth Massachusetts P. O.—Ware.

Ten Illustrations of the Drafts.

IRON CRANE-NECK CITY COACH.

Illustrated on Plate I.

OCCASIONALLY we come across novelties, presenting to our minds such decidedly original features that they have a strong claim to our attention. Some of the points in this coach possess this character. One striking peculiarity will be observable in the mode of constructing the back spring, differing in many respects from any heretofore in use. They constitute a carriage very easy-riding, but have not yet been long enough in use to thoroughly test their durability. The front portion of this carriage is still more original than the application of the back-spring—decidedly a new feature. The carved seat-standards are something new, imparting to the front an aristocratic look and pleasing effect. As a successful effort in dispensing with that "old-fogy institution," the hammer-cloth, we pronounce this the *ne plus ultra*. In our drawing, the quarter-panels are designed as close, but they can be so constructed as to be removed at will, when the carriage would serve as a very handsome open one for summer use.

PRINCE ALBERT ROCKAWAY.

Illustrated on Plate II.

THIS design is distinguished for its uninterrupted easy sweeps, with the quarters divided off into upper and lower panels, the latter being raised to the double thickness of the moulding in front. These mouldings are rounded off a trifle, showing a portion of the square open rail to the front seat. This will make a very light and pretty Rockaway to seat four passengers.

FANCY CUT-UNDER BUGGY.

Illustrated on Plate III.

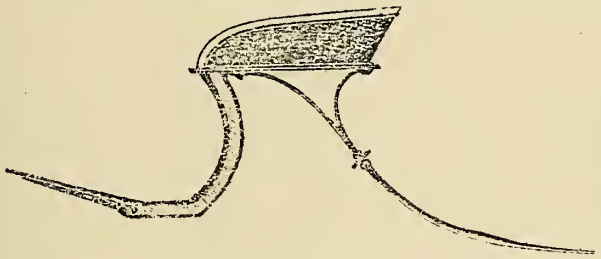
IN this unique design, the back corners of the body are handsomely relieved of their monotonous appearance by mouldings and the short pump-handle. A two-seated vehicle can be made, with the hind seat to turn in, as in our example. The front seat purports to show a swelled panel, the same being relieved by light ribbed mouldings. The side-panel to the body is intended to be "solid."

FASHIONABLE CARRIAGES.—Our readers would doubtless like to "be posted" in the New York fashions applied to carriages. We would remark that there is nothing particularly new this season. We have already anticipated those most popular on Plate XVIII., Vol. III. War time is not exactly *the* time for producing novelties in things tending to luxury, and especially in such *great luxuries* as pleasure carriages.

Sparks from the Anvil.

NEW STYLE OF LOOP FRONT.

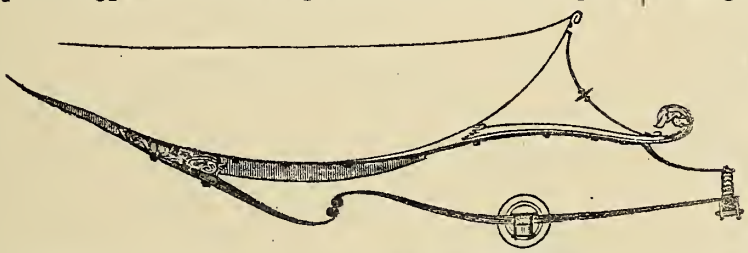
THIS loop is designed to run directly under the seat,



so as to steady the heel or front moulding of the seat, it being hidden by the same.

COMBINATION SPRING.

WE have been furnished with this rather original plan for imparting an easy motion to platform springs. It is very ingenious—perhaps more so than practical, but may prove suggestive. On this plan, the vibration of the plat-



form spring would be more advantageously extended to the front seat by adding this supplementary spring. The pump-handle, too, would require to be strongly ironed, to render it capable of sustaining the weight which it would necessarily have to bear.

MANUFACTURE OF IRON AND STEEL.

IT is considered a well-established fact that when a compound is subjected to an electrical current, its negative and positive elements are detached from each other. Pig metal contains more or less of carbon, phosphorus, sulphur, arsenic, oxygen, and silicon—bodies all electro-negative in relation to iron, which is electro-positive. When impure iron in an incandescent state is subjected to streams of electricity, the chemical affinities by which its various heterogeneous components are firmly associated are immediately subverted, and the sulphur, phosphorus, and other impurities, so degrading to the quality, are nearly or altogether removed. Acting upon these considerations, Mr. Isaac Blackburn, of Long Eaton and Parliament street, London, has patented an invention, according to which he thus employs, to create the electric current, and for the other purposes of his invention, the agency of phosphorus, amorphous phosphorus, or their oxyds, with or without alumina, or other pure clay suitable to his purposes.

Stack Furnaces.—Having provided himself with a cast-iron or other suitable vessel to hold any given quantity or weight of metal in a state of fusion upon tapping out, he causes the metal to be run into the vessel or receiver the approximate weight desired to be electrized. He throws in the phosphorus, amorphous phosphorus, or their oxyds, protecting the same from the action of the oxygen of the atmosphere by a thin coating of alumina or other plastic clay. The electric current effects the subversion and completes the perfect electrization of the metal. After all visible chemical action ceases, he runs the metal into suitable metal moulds, or into the ordinary sand pig-beds, or uses the metal moulds without the receiver. The quantity of electrizor to be used must be determined by analysis of the iron, and the weight to be electrized.

Refinery.—When the metal is tapped, and the charge about half run out, he then introduces the phosphorus, amorphous phosphorus, or their oxyds, into the moulds of the refinery. The metal having become electrized remains in moulds the usual time until convenient to remove to the puddling furnace to be puddled in the ordinary manner.

Puddling.—When the metal is thoroughly melted, he introduces into the puddling-furnace the electric agent, the phosphorus, amorphous phosphorus, or their oxyds, which acting energetically upon the electro-negative portions of the metal to be electrized, the charge shortly commences boiling, and the whole mass speedily arrives at nature. In using phosphorus, amorphous phosphorus, or their oxyds, he finds it convenient, as before stated, to enclose it in plastic alumina or other clay; this, strengthening the cinder, protects the metal more completely from the action of the oxygen of the atmosphere.

Foundry.—In making iron castings, he uses phosphorus, amorphous phosphorus, or their oxyds, with or without alumina or other clay suitable to his purposes, in the following manner. The quantity he employs depends on the degree or state of carbonization of the metal used, on its supposed impurities, and on the degree of hardness or softness sought to be obtained in the casting, therefore he does not confine himself to any definite quantity; but the impurities and carbon being known, it is easy to calculate from the oxygen required to oxydize the former completely, and to saturate the requisite quantity of carbon, how much phosphorus is to be used. The electrizor must be well stirred or agitated among the molten metal until all visible chemical action shall have ceased. The metal having become subverted, and the electrization completed, it is then run into the mould in the ordinary manner.

Paint Room.

For the New York Coach-maker's Magazine.

SOMETHING ABOUT BLACK JAPAN.

IN this country we make very little use of japan other than as an auxiliary in drying our paints, and that chiefly under the name of brown or light japans.

In England the case is far different, and an article denominated black japan is in much favor as a coating for iron-work and some portions of a carriage. This is used in the same manner as color and varnish, after the ground-work has been properly leaded and prepared by an application of one coat of *dead* black. On this is spread two coats of black japan, and over this again one coat of good varnish.

We are assured by those qualified to decide, that this English article possesses a gloss superior to anything manufactured in America, and is found to be superior to anything else for the black work of carriages, such as springs, loops, joints, lamps, &c., and that "two coats applied as above to an old coach, will cause it to resemble a new vehicle of the most costly finish." This last assertion is no doubt *a little stretched*, but the japan is a good thing notwithstanding, and may be had of Driscoll & Co., 185 Bowery. Try it! PAINT-BRUSH.

SPONTANEOUS COMBUSTION FROM LAMP-BLACK AND OIL.

AN English manufacturer had a workman in his employ, who placed a ladle recently used in measuring linseed oil, upon the top of a cask of lampblack, from which a few drops fell into the cask. One evening, just before closing his establishment, he discovered a very disagreeable smell, and, having searched for the cause, he found, to his surprise, that the whole of the lampblack in the cask was one ball of fire, which, no doubt, before morning, would have caused a conflagration, destroying the entire premises. We would advise our friends to be careful, and not keep lampblack in too large quantities about the paint room. Probably many of the fires which occur in carriage-manufactories happen from similar causes, and might be prevented by using more caution. It would be a good policy to keep lampblack in an iron vessel.

GREEN TRANSPARENT VARNISH.

THE beautiful transparent green varnish which imparts such a fine glistening appearance to many kinds of decorated work, is prepared as follows:—Grind a small quantity of Chinese blue and chromate of potash together, and mix them thoroughly in common copal varnish thinned with turpentine. The blue and the chromate must be ground to an impalpable powder, and the tone of color varied with the amount of each ingredient used. A yellow-green requires about twice the quantity of the chromate of potash to that of the Chinese blue. This varnish is applicable to japanned goods, and other purposes.

BLACK VARNISH.

VARNISH of a dull, dark color will be found very useful for some purposes. This can be prepared by simply adding lampblack to any spirit-varnish. After application it should be allowed to dry in a cool place. About three ounces of shellac, dissolved in a pint of alcohol, with lampblack sufficient to color it, will answer every purpose. The more shellac there is used, the better the gloss will be.

GOLDEN VARNISH.

PULVERIZE one drachm of saffron and half a drachm of dragon's blood, and put them into one pint of spirits of wine. Add two ounces of gum shellac and two drachms of socotrine aloes. Dissolve the whole by gentle heat. Yellow painted work, varnished with this mixture, will appear almost equal to gold.

ORNAMENTAL DESIGNS.

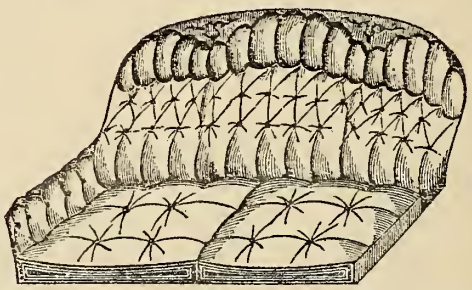
Illustrated on Plate IV.

MANY of our subscribers have manifested a desire to have us furnish them with smaller and more simple figures than we have been accustomed to publish in the Magazine. To accommodate these we are happy to present them with designs sent us by Mr. F. Handshue, of Allentown, Pa. No instructions have been received for painting them, nor is any needed, since an ordinary painter can supply such colors as his judgment dictates for imitating nature. We have more from the same gentleman, we intend to give on a future occasion.

Trimming Room.

FANCIFUL PIPE-BACK TRIMMING.

POSSESSING some entirely new features, the originality of this design is clearly manifest. The arrangement of the folds in the common mode, are here reversed, by placing the diamond figures in the center and the pipe-stuffed



portion at the top. The spaces between the divisions at the top are to be covered with patent leather and ornamented by stitched figures in white. This design, properly followed, cannot fail to supply a lining to a phaeton or other paneled back at the same time both handsome in appearance and easy to the passenger.

FRAUDS IN ENAMELED LEATHER AND MOROCCO.

THE attention of purchasers of enameled leather, the principal kinds of which are sold by the square foot, is directed, in the *Shoe and Leather Reporter*, to frauds that are commonly practiced upon them by some leather dealers, in which they are cheated at the rate of from 5 to 12 per cent. of the quantity of leather which they suppose has been purchased. Hides being of an irregular form, they are supposed to be difficult of measurement, and the way the fraud is perpetrated is described as follows:—

Let us suppose a person wants to buy some enameled hides. He calls on "A," looks at his stock, is told the price is 15 cents, and that the hides will average 60 feet, when in fact they will actually measure but 56. He then goes to "B," whose leather seems to be much the same in quality as "A's," and is told the price is 16 cents, and that his hides will average 56 feet, which is honest meas-

ure. Now, if the buyer is willing to believe that all manufacturers of leather are alike honest, he will of course say, "I can't buy of you, Mr. B, as I have been offered leather apparently as good as yours at 15 cents; besides which it averages four feet larger, which is quite an object with me, particularly with such as is wanted for carriage-work."

The person will of course make his purchases of "A" (although he pays just four cents more per each hide than "B" asked), and will congratulate himself that he is a sharp buyer, and conclude that "A" is a liberal man, while "B" is an extortionist who is robbing his customers by his enormous profits; when in fact the purchaser himself is being robbed by the very party on whom he is bestowing his patronage.

The above is no imaginary case, but is what is occurring every day; nor is the amount of fraud exaggerated.

Apropos to the above we add another most cunning and scientific fraud perpetrated in the most respectable manner upon leather purchasers. The price of morocco-dressed sheep-skins ranges from $2 50—the lowest—up to $8 50 per dozen, whereas genuine morocco (goat-skins) range from $5 up to $23 per dozen. The difference in the quality of the two classes of skins is very great. Dealers in dressed skins—both jobbers and those who purchase for making them into bindings and shoes—can generally tell a morocco-dressed sheep from a goat skin, because the natural grain of the two is so different. A most complete imitation of goat-skin, however, has lately been put upon sheep-skin by obtaining large copper electro-plates of genuine goat-skins, and using these for die-plates upon which sheep-skins are laid and submitted to pressure. A perfect resemblance of genuine goat-skin is thus imparted to sheep-skin, and the most skilled dealer is unable to detect the fraud. We have been informed that such skins are sold daily for genuine morocco.—*Scientific American.*

LEATHER-VARNISH.

On page 93 of Volume I. we gave a recipe for making leather-varnish. We now present our readers with another. Take 5¼ pounds of shellac, 3½ pounds resin, to which add 3½ pounds of turpentine, 1 pound of lampblack, 3 gallons of alcohol, and ½ gallon of linseed oil. Melt the gums in the oil by gentle heat; let the mixture get cool, and then add the other ingredients. It should be allowed to stand two or three weeks before using in a bottle tightly corked, so as to prevent evaporation.

Hack Skinning.—An exchange says: At present you take a boat at Troy and come to this city for less money than you will have to pay for the conveyance of yourself and trunk from the steamboat-dock to your house or hotel, a mile and a half distant. There is no such extortion in any other American city that we ever visited, San Francisco only excepted. Even Washington, the metropolis of extortion, gives you a carriage-ride at a fair charge. New York alone skins you every time you get into a hack. In behalf of every body but the skinners—nay, in behalf of even *their* real, permanent interests, not as skinners but as hack-owners—we implore the legislature to do the *Hansom* thing by our citizens and the strangers that are or may be within our gates.

The New York Coach-Maker's Magazine.

JUNE 1, 1861.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

Bound Volumes *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

Covers, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

Our Traveling Agents.—*Mr. John Hewlett, of Toronto, is the only authorized agent we have in Canada West. Mr. Hiram Mills has the agency of this Magazine for Lewis County, N. Y. Mr. Matthew G. Peck, Jefferson County and some others.*

☞ *All letters directed to this office on business* not *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* not *complied with, no attention will be given them.*

S. W., of C. W.—We cannot receive orders for materials, other than from cash customers. To send catalogues of everything would tax our time too much; we can only answer to separate questions when propounded. The price of working drafts, nicely colored, will be $5.

J. R., of N. H.—When a single number only is sent for by mail, we want 27 instead of 25 cents. We are put to some extra expense when we receive such orders, and those we accommodate should be willing to conform to our rules.

H. C. G., of N. Y.—We cannot furnish you with the information sought, in one number of the Magazine. To obtain it requires that you become a regular subscriber. We have no time for the written instructions.

W. C. B., of N. B.—The remarks under the head of "Discounts and Postage," on page 217, Vol. 3, are recommended to your attention.

APPEAL EDITORIAL.

Judging from the excitement so plainly manifested in the countenances of the people, one would suppose that something very extraordinary had taken place, and that the business long so prosperous with us had entirely gone. At no period in our history as an independent nation has the horizon looked so dark and stormy as now. This noble Republic—the noblest on which the sun ever shone; the land of Washington; the boasted land of the free, of many climes—is terribly agitated from center to circumference. Instead of "the peaceful arts," we have nothing but preparations for war, and the rumble of *gun*-carriages. Under such circumstances, the first thing a prudent man does is to dispense with such luxuries as his nature does not necessarily demand. Among these will be the use of pleasure-carriages, and it pains us to think, while we write, that this retrenchment, alone, will throw out of employment thousands of our fellow-craftsmen. Already the larger cities in this vicinity, that were mainly dependent on Southern patronage for their subsistence,

are now almost ruined, and the worthy mechanics there employed will have to look elsewhere for their bread. This will have the effect of scattering in all directions some of our most reliable friends, with whom we grieve to separate.

With such facts before us, it may be deemed presumption to urge upon the mind of any one the special interests of this Magazine; and yet we cannot enter upon the publication of our Fourth Volume without reverting to the subject; neither can we stifle the conviction in our mind that for the bulk of the patronage—hitherto so generously awarded us—this year we shall be obliged to depend upon the kind offices of our country friends. These may congratulate themselves that they are not pent up in cities, where failures in business are every-day occurrences, but that their customers are substantial farmers, who are safe to be trusted and abundantly able and willing to pay their debts, even in war time. The experience of three years in editing this work has satisfied us, that no class of coach-makers are more largely benefited by our labors than those remotely placed from New York, and consequently it is with confidence that we now appeal to them for voluntary effort in adding to our subscription list. It is rather expensive traveling to reach isolated towns, but this may be dispensed with, should our friends take the matter in hand, and send in such names as their influence will command as subscribers. Please examine the terms printed on the first page of the cover to this number, and remember that while doing us a pecuniary favor you will also be benefiting yourselves, should you succeed in forming a club, and a little effort will be certain to accomplish such an object.

Since the inception of this enterprise, it gives us pleasure to think, that many of our brother craftsmen, whose faces we have never seen, have generously lent us their co-operation in giving interest to our pages; by which means we have been enabled to present a monthly variety no special publication such as this has ever yet attained to. We have every reason to believe we shall still be remembered, and as an earnest of this, we present our patrons with evidences in this number. If not the best, it certainly is a good one; and we are certain that the widest diffusion of the practical knowledge contained in this work will tend to the elevation of our fraternity as a body of mechanics, and improve the art manufactures of different classes of pleasure carriages throughout the country. A distinguished editor long since, in commending this Magazine, remarked, "We shall think more of the coach-makers than ever, for having such a work as this."

At the low figure which we supply this Magazine, it requires a large circulation to remunerate us. The costs of the original engravings done expressly for our Journal are, during the year, very great; and aiming, as we do, to present the work in all particulars worthy of the respectable body of mechanics for whom we cater, we cannot, as with many other publications, reduce the expenses so as "to suit the times." Inviting, therefore, a candid inspection of the contents as found in the present number, we would ask the reader to judge whether or not we are sparing of labor or expense to furnish a *good* magazine at a *small* expense to him. If satisfied of our integrity, we hope to be favored with assurances of his *good* will by remitting money and orders for the work. Indeed, if a better claim on a three-dollar bill can be put forth for any other publication, we have yet to learn the fact. For those who habitually *borrow* instead of *buying* this journal, we have an utter contempt, and hope that none of our sincere friends will give such meanness the least countenance.

EXITUS ACTA PROBAT.

A FRIEND has put into our hands the February issue of our nine-dollar cotemporary, in which, among a mass of *rubbish*, we find an interesting extract from a letter said to have been sent to the English editor "from one of *the* leading firms of Broadway,"—evidently from the junior partner of "*the* leading firm" alluded to. In said extract the English journal is fulsomely lauded, and much regret expressed "that *we* (!) cannot offer one of equal value from this country." This is decidedly *modest* in our intermeddling friend, when we take into consideration the peculiar education *he* has undergone, to fit him for the judgeship of mechanical literature, when applied to coach-makiug. Let us *weigh* the value of *his* "opinion."

In his youth he learned the business of a brass-founder, from which he emerged a full-fledged *brass-finisher*, but in process of time, finding that respectable business unsuited to his unbounded genius and ambition, he left it, in disgust, but not until he had *absorbed* enough of the brazen qualities of the metal to supply himself with the article for a lifetime. Under these circumstances he *smuggled* himself into the coach-making business, and has reached his present position, under the impression that he is the smartest man in the trade. Our cotemporary is perfectly welcome to the "*sham* pretensions" of *his* "American friend," whose *brazen* effrontery at "worming out" of the editor "his method of *sham*-caning," is only matched by the stupidity and ignorance he exhibits in conducting his "slow coach."

As for the English editor, he is not a practical coach-builder, and therefore is neither qualified to appreciate the value of our monthly, nor to conduct with ability the Journal of the craft in England. That he has made a *mistake* in attacking the character of this Magazine, we will now show, and in his own language "we recommend the quotation and the lesson it teaches," to his particular attention, premising that it was voluntarily furnished us by the "English Journeyman" who is now so conspicuously figuring in the pages of our cotemporary. The

Editor may take the passage as *a fair* off-set to his New York friend's *opinion*. It may be found on page 134 of our third volume. Having spoken in the highest terms of the claims of this Magazine to public favor, he thus proceeds:

"The English have their journal at more than double the price of this. The French have theirs at almost double the price of ours, and I am told by competent judges that 'our Magazine' more than 'holds its own' in comparison with these, which are published in countries where labor is so much cheaper than it is here. The price of this Magazine brings it within the reach of all. As much cannot be said for its two cotemporaries." This is strong testimony in our favor, which we hope the English editor will not, with his usual practice, rob us of, when he comes to republish the article from which it is taken, by expunging it from the text. Let him "*swallow it whole*," although the *taste* will be bitter.

Our cotemporary says that "the success of [his] our efforts in behalf of the trade, may, we think, be turned to practical account as a means of communication between the members of the 'craft' at home and abroad." That the *abroad* "members of the craft" may know the opinion entertained of the journal's "arrogant pretensions" at *home*, we will now present the "opinions" of the editor of the London *Practical Mechanics' Journal*, in the shape of criticism soon after the Carriage-Builders' Art Journal made its appearance. It is a fact patent to all readers, that the first number of our pretentious cotemporary has never been excelled by any subsequent issue, and this is chiefly due to the circumstance that *the non*-mechanical editor has since been "left to row his own boat" alone, while his loud calls for help have resulted like those of the man who undertook to "call up spirits from the vasty deep"—they wouldn't come.

The Editor of the Practical Mechanics' Journal remarks: "Since Mr. Adams' well-known book on wheeled carriages, we believe we have had no public instructor in this class of manufacture; and although Mr. Adams understood his subject as well as any man living, and wrote about it in that masterly style which has since been more fully developed in various branches of the literary art, there is no doubt that there was plenty of room for something of a more advanced kind, and which should bring up the history and practice of the great art of carriage-building, to somewhat near our own times. We are sorry, however, to find that the *Carriage Builders' and Harness Makers' Art Journal*, so far as it has already run [5 Nos. issued] gives but little earnest of accomplishing these points. Its very title, in black and red, makes us distrust its contents before we turn the cover. That voluminous, or at least many-lined page, tells us that it 'contains practical directions in all branches of coach-building, with working drawings (!) and colored illustrations, forming a beautiful *show-book* of carriage-architecture, of the most approved designs and patterns, of all descriptions of pleasure, domestic, public, railway, government, and agricultural carriages, introducing and explaining, from time to time, all new patents and improvements in springs, wheels, axles, and lamps; designs in metal chasings [including brass?] steel and iron work, silk and lace, carriage-furniture, heraldry, &c., &c., with an inquiry into the combination of paints and varnishes, and the contrasts of color, including working drawings and designs in harness-making and saddlery.' Here is a prodigious commencement. We almost think we know all about the art of constructing vehicles and harness from reading it, it promises so much," &c. We have been induced to present our readers with the above *recommendation*, from *charitable* motives, although the English publisher has heretofore treated us shabbily, by cheating us out of an advertisement (for which we had paid him four months in advance) and which in a mad fit he has now discontinued. But to the the criticism.

"Each part contains two [one] colored plates of carriages, set off with all the graces of the art of the professional carriage-draughtsman and colorist, and two outline plates giving constructive details. This arrangement is very well conceived, but if such erroneous drawings as that of Mr. Oxley's fore-carriage are given, we are afraid the elementary work will not be of much value. In this case the principle of the conical wheel has apparently been quite misunderstood, for the angles of the axle bearings, and the corresponding inclination of the wheels, do not at all accord with the disc of the wheels, and the consequence is, that the set of wheels is as wrong as wrong can be, and the outside edges alone of the tires would bear. * * * In Part III. we are treated to something more on conical, as compared with flat or disc wheels, on which we shall not remark further than to say, that, like the other chapters on the subject, it contains many absurdities; and, in one of the sketches of the wheels, the lower part of the wheel is shown as at right angles to the axis, whilst the upper part is disced off." This article has been reproduced in our Magagine, and the reader will find it dissected in the present number by a correspondent, the MS. of which has been on our hands two months, awaiting room for its publication. It is a fair expose of the stuff the English editor serves up to his readers, in the absence of stealings from our pages.

We have been thus "wordy" out of pure regard for the best interests of our cotemporary, and promise him that should circumstances require, we shall still further "tickle his fancy" with extracts from letters in our favor, from at least *three* of "the leading firms" of coach-makers in England, and add additional ones of home commendation, that will at least "set him to thinking" that in this case, at least, he has "woke up the wrong passenger."

CARRIAGE-MAKING IN NEW YORK.

THERE are within the limits of New York city, which embrace Yorkville, Manhattanville, and Harlem, about eighty shops, large and small, employing, in prosperous times, a large amount of capital, and furnishing work to at least two thousand hands; but at present these are reduced to less than one half of that number. The carriages *made* in New York will command in price full twenty-five per cent. more than any other, and are not only sought after by our own citizens in preference to all others, but have been supplied to all parts of the United States, the Canadas, the West Indies, Mexico, and South America, and, in addition, a fair *sprinkling* of them may be found in London, Paris, and St. Petersburg. In lightness and proportionable strength they far surpass anything ever brought from Europe, of which we have had a fair chance to form an opinion, by seeing them stand side by side with each other in the Broadway repositories. In beauty of outline and the other essentials which serve to form a fine carriage, they are unrivaled by any outside of this republic.

But, as in all other business, our national troubles have brought into our midst a stagnation which is telling with fearful effect upon the craft. When business is flourishing and money plenty, the so-called aristocracy are inclined, and *will* make a display, and to do so effectually, a fine coach with outriders becomes necessary; but in times like the present, nothing but *gun*-carriages and the "fixin's" are in demand. Everybody, just now, has assumed the character of a patriot; and this character puts rich and poor upon one common *footing*. Patriotism shuts such luxuries as carriages up in carriage-houses under lock and key, while *our* country's flag is being defended. Even the arm of the auctioneer, which, under some circumstances, is active, has now become completely paralyzed. Those who in prosperous times *will* ride, now forego that pleasure rather than be at the expense of keeping an hostler, and walk!

But there is one gratifying circumstance about this dark picture; the craft have furnished less failures, perhaps, than any other class with the same amount of capital invested, and for this, doubtless, a previous three years' depression of business had somewhat prepared them—discretion and forethought had warned them to keep matters snug, so as to be prepared against contingencies. For the welfare of the trade, as well as that of our common country, we earnestly hope that by the time autumn rolls around, we shall be able to chronicle a different state of affairs.

THE HAND-SAW.

INVALUABLE and necessary as this instrument is to the mechanic, it is of comparatively modern invention, and still not in use in some of the districts of southern Europe. The carpenters there, or such as pass for such, still cut up or slit their boards with such instruments as the colored *artists*, at our doors, prepare oak and hickory for our fuel. It is only among the most enlightened people that the *hand-saw* is popular.

It is true that the ancient Egyptians had an apology for the hand-saw, as may be seen in the drawing copied from the monuments of antiquity, given on page 65, Vol. I., but it is little more than a toothed cleaver or knife. Among the antiquities from Herculaneum is found a representation of a carpenter's shop, including a work-bench, on which is seen a piece of wood secured in a sort of vise, as with us, a box of tools are placed under the bench, a mallet lies on the floor, beside which two workmen are cutting a plank; one holding it down on the bench with his left, while he operates a frame-saw with the right hand.

It is by no means certain that *our* hand-saw was in use in Shakspeare's time, for although Hamlet is made to speak of "knowing a hawk from a hand-saw," critics inform us that the correct reading is "*kenn-shaw*," and they are probably right, for the object he alluded to could have been no novelty. As a writer observes, "We know of no previous form of the saw that was managed by one hand from the pit or cross saw, to the ribbon or tape-like class, the stiff key or hole cutter, or the flexible one, by which the old Roman burglar mentioned by Cicero, adroitly cut out the bottom of a treasure-chest." Such attempts are now more often made with a "Jemmy," and saws have attained a more honorable "position" in society.

ERRATUM.—On page 5, line 17 from the bottom of the first column, for A. D. 53, read *A. C.* 53. In the second line of the second column, for *Cassivelallnus*, read Cassivelaunus. These errors are *all* due to the *smartness* of the proof-reader in our printing office, who undertook to *correct* in the revise the Editor's proof copy. We won't *trust* him again very soon. On page 6, last line of the first column, for *Narkworth* read Warkworth.

EDITORIAL CHIPS AND SHAVINGS.

THE DEBT WE OWE TO OUR ANCESTORS.—Happily for the present generation, there were other minds preceding them engaged in quarrying the rough granite blocks of knowledge from the deep mines of mystery, until as in our time the stately Temple of Science stands erect in all her fair proportions and beauty, to enlighten the world. It is true this has been done with the rudest kind of tools, and every block in that building has been chiseled out with painful anxiety, and, in many cases, doubtful results. Starting with few of the guide-boards furnished the modern scientific searcher after knowledge, our ancestors were compelled to dig deep

into the interior and invisible essence of their subjects, and from intuition, consciousness, and the abstract nature of things, complete their systems as they are now presented to us. The purely mental exercises they were in many cases forced to pursue, were fruitful in thought, now rendering the successful student immortal. These discoveries leading to an immortal name among the nations, has given a legacy to every human being, we are too indifferent in appreciating. Reader, have *you* ever reflected upon how much of your present happiness is due to your "illustrious predecessors?"

AMERICAN INGENUITY.—The London *Mechanics' Magazine*, with more candor than we are accustomed to find in English periodicals, pays the following compliment to our countrymen:—

"The Americans are famous for floating docks and derricks, such as have been seen of late years on the Thames: for unloading gear for shipping; railway engines and carriages; tramways and tramway cars, such as are now being proposed in this country by an American gentleman with the appropriate name of Mr. Train (excellent things are these tramways for relieving the traffic of crowded cities); canal slides and canal boats built in sections, steamboats and pilot-boats, &c.; and, finally, modes of house-warming adapted for very cold climates."

A PICTURE FROM TRIESTE.—The wheels of all wagons in Trieste, except the most fashionable carriages, are very small; those of lumber wagons are scarcely ever more than two feet in diameter, and are often less. The wagon-boxes are made of strong wicker work, spreading as they rise to the top, which is rarely more than four feet from the ground. The carriages of the middle classes —the lower classes, or peasants, always traveling on foot, even when coming from miles on the hills around—are very low, and with the horses, which are also small, when filled by a man and his family, remind one forcibly of a boy that has outgrown his clothes by three or four years. The horses' collars are much larger on the upper than on the lower side, and are frequently high and heavy, for what reason is not very apparent. Yonder goes a charcoal cart, drawn by a woman, while her husband pushes behind, and a boy carries a basket and shovel by its side. Here is a pile of wood, or rather of branches and twigs, cut about twenty inches long, and tied in bundles for sale. By the side of that large warehouse a shoemaker has his bench, with "all-out-doors" for his shop; a little further along a woman is making gaiters, with her stock in trade on a single board before her. Nearly all of the marketing is done in the streets or public squares. All the streets are well paved with large stones, and are kept serupulously clean. Little distinction of sidewalk is regarded, but pedestrians rather prefer to walk in the middle of the streets. We see there a motley group; perhaps its like is not to be found in any other city in the world. Germans, Frenchmen, Swiss, Hungarians, Englishmen, Italians, Dalmatians, Greeks, Turks, Africans —men, women, and children, in every grade of society; the prince with his coach and six, the gaily-dressed belles and beaux, men of commerce, sailors, every third man an armed soldier, women with tubs of water, or piles of baskets as high as themselves upon their heads; peasants with wooden shoes or sandals on their feet; carts and wagons of every kind, drawn by oxen (frequently by a single lean one), by horses, donkeys, or *men*—passing in every direction in the *middle of the streets*, to American eyes make a singular spectacle indeed.

STEAM-CARRIAGES ON COMMON ROADS.—The first steam carriage for common roads appears to have been made by a Frenchman named Cugot, who showed it to Marshal Saxe, in 1763. Afterwards he made another, which on the first trial, went through a wall, and being at that time considered dangerous, it was placed in the arsenal museum at Paris where it may now be seen. In 1763, an American by the name of Oliver Evans invented a steam-carriage, but it did not come into use. The next experimenter was a Scotchman by the name of William Symington, but the roads in Scotland at the time (1786) were so bad that he had poor success with his invention. William Murdock, in 1794, made a model of a steam-carriage, which is still in the possession of a relative. In 1789, Thomas Allan, of London, made a steam-carriage designed to carry goods and passengers. Since that time Mr. Scott Russell, Mr. Boydell, Mr. Bray, the Marquis of Stafford and others have all experimented with a view to perfecting steam-carriages. In our own country, Mr. J. K. Fisher has given much attention to this subject. One advantage claimed for steam-carriages is that they will do away with horse-flesh to a great extent, a steam-engine, costing but a trifle in comparison with the number of horses required to obtain the same amount of power, and another is that room is economized. The saving of time, money, and space by their adoption is a cogent reason for their common use; particularly in times like the present, it is thought they would be useful in the transportation of cannon from place to place.

TRANSPORT CARRIAGES FOR CANNON.—This carriage, lately invented in England, is said to be very simple, and consisting of four parts; a pole and axle with two wheels, with a projecting fork and upright pin over the axle; in fact a "roller handspike" mounted on wheels. The pin of the pole being raised, fits in a plate in the rear and under part of the slide of an eight-inch gun-carriage, and by pulling down the pole, precisely as the handspike is used, the weight of the slide, carriage, and gun, is taken off the ground, and thrown on the fore-axle of the transporting-carriage. At the fore and under part of the slide, in a line with the fore chase of the gun, are fitting to receive an

iron axle, which is clamped in its place, and then fitted with its two wheels. On ordinary roads the heaviest guns may be transported with ease.

A Western Governor and his Dogs Traveling.—The *St. Cloud Democrat* gives an interesting account of the trip of Gov. Barber of Dakota, of 500 miles on a sled pulled by dogs. The Governor traveled from Selkirk to St. Cloud. The vehicle is a very thin board split from an oak log. It is about as wide as a chair-seat, and eight feet long. It is bent upward in front like a sled-runner, and lies flat on the snow. Usually this is all, but our Governor, with an eye to elegance and creature comfort, had a cutter-sled built on his, of parchment, with a back high enough to support the shoulders, scroll-shaped sides, and a front curling over. The parchment is supported by oak slips as thick as a man's finger. It is staunch and firm, and yet the whole affair, we are told, weighs little over ten pounds. In this little bed the traveler sits with his buffalo robes and blankets, while on the flat board which extends behind him is strapped his pemmican and other provisions. Before him are his four dogs, hitched between two long traces of raw-hide, one before the other. The traveler has a whip long enough to reach the foremost, and usually keeps up a vigorous flogging and shouting. The creatures will travel from 30 to 60 miles per day, and keep on day after day. Their allowance is one pound of pemmican each daily; but often the traveler, who goes well armed, succeeds in shooting game, and thus furnishes food for his steeds. The dogs are of the wolf species, ugly, treacherous-looking brutes, who would no doubt eat their master if they got a chance. A turn-out of this kind is a natural and artificial curiosity combined. The Governor, as dog-train travelers usually are, was in the spirit of it; and with his moccasins, fringed leggings, red sash, fur coat and cap, long hair and beard, looked like a combination of polar bear and Indian.

The Great Earthen Wheel in Danger of being "Blocked."—A visitor just come from the oil-wells of Pennsylvania thinks that government ought to put "a veto" on any further boring and pumping on this continent, for he is persuaded that the oil thus extracted from the earth is required to prevent friction to the axle, and to facilitate its revolution. He thinks that when lubrication fails, the great wheel will stop. As this would be a serious matter, some one should attend to it at once.

Riding among New York Aldermen.—It would appear as though there would be no end to the "luxuries" these "*suckers*" enjoy at the expense of the "dear people." For one year, as just reported by the street commissioner, the carriage hire of *our* "city fathers" amounts to the snug *little sum* of $7,431 50.

Things we wish to Know.—We should like to know how many spokes there are in a wheel of fortune?

Who was the *inventor* of the Chariot of Fame?

Where can we find *a gentlemanly* carriage?

Has any one of our readers seen *a spoke* from the wheel of time?

The American Hub Company.—We would call the attention of our readers to the advertisement under this head in our advertising department. Those in want of a *good* article of hubs at the *lowest price*—full one third cheaper than we have ever known them sold before—will find it to their interest to call at 127 Elm street, N. Y. These hubs are turned by a new process, and so perfectly that every hub in a set is exactly of a size and form, so that one band fits every hub.

Bird's Improved Duplicating Carriage-Seat.—Those who are enquiring for the best shifting-seat carriage ever invented will do well to examine the claims of an advertisement in this number. It is certainly a good thing—ahead of any that has yet come under our notice.

The Coach-Maker's Letter-Box.

LETTER FROM INDIANA.

Prairieton, Ind., April 27th, 1861.

Mr. E. M. Stratton: *Dear Sir,*—In my last, I referred briefly to the importance of having sufficient room in the building occupied for the manufacture of carriages to insure comfort to the laborer and prosperity to the master. Every workman will certainly agree with me when I assert that prosperity depends as much on the room, as on any other provision that could possibly be conceived of in a carriage-shop. But it is not necessary to consume time and space in advancing arguments to establish a fact of which everybody is undoubtedly convinced; therefore we would not elaborate further upon the subject of size, but would merely advise those pursuing the business, if their shops are small and inconvenient, to enlarge them, and, should they anticipate building, to make provision in their specifications for this indispensable desideratum. All proprietors of shops who know anything about business, are undoubtedly aware that no good "jour" will stop any length of time in a small, crowded, jammed-up shop; if he does, it is from sheer necessity, and as soon as his purse is supplied with the "needful," he will begin to manifest his disapprobation by looking about for more ample quarters, and will, perhaps, leave you at the very time his services are most needed, thus discommoding yourself and disappointing your customers.

A great many shops are built seemingly without a second sober thought being taken as to the course that should be pursued; forgetting entirely the most essential part, that of "counting the cost" before going ahead. I have seen shops, or skeletons, intended for shops, stand for years without doors or windows, and not unfrequently without siding or roof, simply because the capital and the cost had not been compared.

In making an estimate of costs in building a shop, it is not fair to merely count the immediate expenditure for materials and work; but durability, utility, and perhaps appearance, should be considered, and the whole properly compared together, and a conclusion drawn accordingly.

As there exists but very little difference in the cost of building, I would suggest that brick be used, which, being well lighted and ventilated, is found to make a very agreeable workshop. A brick wall is undoubtedly less liable to admit the external atmosphere than a wooden one, hence it is capable of retaining a higher state of temperature; for it is obvious that if the frigid outside air of our northern climates can be successfully repelled from the interior of a building, it will not require so much fuel or labor to keep a regular and sufficient degree of warmth to make it comfortable in the most extreme winter weather. (Foremen are often heard to complain of the enormous expense incurred by the use of fuel, but seldom make any proper efforts to remedy the matter.) While it may be admitted that a higher state of temperature may be maintained in winter, it does not consequently argue that a higher degree must necessarily be endured in the summer. The same skill, properly applied, will render comfortable both January and June. An adequate number of doors and windows must be used to avoid the accumulation of foul and stagnated air, and the unwholesome vapor arising from cold, damp walls, and to supply a sufficiency of fresh air, which is all that is necessary to make the shop a very desirable and agreeable place.

It is to the proprietor's advantage that the men in his employ retain health and vigor to prosecute the respective branches of the business assigned to each. It is true that it is not all of the interest of masters of shops to simply be rid of the risk and responsibility resting upon laborers, of lost time by sickness, &c., but it is their interest that their business be prosecuted with all possible dispatch, that it be worked to the letter of promptitude, and thus by firmness gain the confidence of the community by which they may be surrounded. Admit the premises, and it becomes indispensable that an eye be had to the condition of the shop, and that an exertion be directed toward the successful accomplishment of the desired object.

Some object to shops being more than one story high; but I do not, from the fact that the second story may be very advantageously employed. If not needed for woodwork, it may be used for painting or storage, and be found very convenient for either.

If I should be asked to suggest a form for building, I would propose the octagonal, believing it to be the most convenient for the business, and the most attractive in appearance. For a country shop, fourteen feet angles or sides might be sufficient, giving one hundred and twelve feet circumference, or thirty-seven and one third feet diameter; affording ample space for eight "hands" to work comfortably.

J. WALTER SHIRLEY.

LETTER FROM ALABAMA.

WE know of nothing that possesses a greater charm to our mind than, in early spring-time, after a long period of close application at the bench, to pass a day amid the green fields and budding trees of this auspicious land. Such a day we have just passed, and is there not some few readers of our Magazine who, from their homes in the crowded cities, will love to wander with us beneath the bright skies of our Southern homes.

I was awakened by song-birds singing merrily from the shade trees near my window this morning. As I lay half asleep, their sweet warblings seemed like far-off music to my dreamy senses; but suddenly I was thoroughly aroused by a low rap on the door, then it opened and the black face of old Tully peered through the aperture, as he stammered out in his peculiar way—"Please, Mas'r, 'bout time you'se stirrin' 'roun; near 'bout sun up, and Mars' Harry gettin' ready," and, with a bow that would have done honor to a French dancing-master, he disappeared. Springing up, I forgot all about the morning's serenade in the excitement of the moment. A few minutes sufficed to make my toilet, then, seizing my rifle and ammunition, I hurried out just in time to greet my friend, Harry Bradford, as he drove up to the door. Taking the vacant seat by his side, old Tully, or Tul as he was usually called, cracked his whip and the fiery horses darted off like a flash.

"We will take breakfast at my sister's, down by the river," said Harry, as we sped out of town. "You are commander-in-chief of this expedition," I replied, and, reclining back in my seat, I took a survey of the glorious scene by which we were surrounded.

A bright stretch of golden light along the eastern horizon betokened the approach of King Sol, while a few fleecy clouds were driven across the face of the heavens by the morning breeze. The air was heavy with the rich perfume of China-trees, now in full bloom, together with the wilderness of roses that filled the spacious yards on either side of the street, while the birds, perched in every tree-top and along the fences, poured forth their sweetest notes of song. First and foremost among them was the mocking-bird, that glorious, unrivaled mimic and songster of the feathered tribe. Perched upon the topmost twigs of the live-oaks, they poured forth the richest and sweetest, or the most grotesque and ludicrous notes that mortal ear ever listened to. As we shall have occasion to speak of him again before our journey is done, we will pass on to our breakfast.

Halting before a fine mansion, beautifully situated on an eminence overlooking a large cotton plantation, we were warmly welcomed by Harry's sister and her husband. After being ushered in the sitting room we passed a pleasant half-hour in social converse, when breakfast was announced, to which, allow me to add privately, ample justice was done on our part.

The repast being finished, we lighted our cigars and, securing the company of Mr. Laydon, our worthy host, we started for the river, followed by Tully, who "toted" the fishing-tackle. Arriving at the summit of a lofty bluff, we sat down to rest for a few minutes and admire the enchanting scene. Down below us the Black Warrior swept by in tranquil beauty, while beyond the heavily-timbered bottom extended for miles, the tree-tops just on a level with the bluff on which we sat, thus presenting a boundless level of living green. There is something indescribably grand and beautiful in such a scene, which can be felt but never related.

Going down to the bank of the river, we each selected a suitable spot for pursuing our sport, and, after Tully had prepared our lines, we threw them far out in the almost imperceptible current, and then sat down to wait patiently for the result.

I will never gain notoriety as a disciple of Isaac Walton. I am too absent-minded, as old fishermen say. For five minutes I sat and watched my line—they seemed like so many hours—but as it was not disturbed by a nibble even, I gradually turned my thoughts to other things.

Close by was a China-tree, and one branch, heavy with purple blossoms, bent directly over me. Seizing a stick, I gave it a blow that caused the dew-drops to fall, richly laden with the most delicious odor. Breaking off a bunch of flowers, I began to examine their delicate structure and peculiar beauty, and in this delightful occupation I was lost to all surrounding things. But suddenly my attention was recalled by the loud and earnest voice of Tully, as he cried, "Laws-a-mercy, Mars' Harry, I'se dot 'em dis time sure,"—and looking up I saw the venerable darkey, standing on the end of a log that projected over the water a short distance, carefully handling his line, while his earnest manner, rolling eyes and open mouth denoted heart and soul engaged in the work before him. "Jus' keep still, now," he continued, slowly; "don't move or say a single word or you'll scar him sure,—wouldn't lose him for five dollars—not for my crop o' cotton last year—golly but he's a *luminous* old fellow, big enuff to make sarsage-meat out of. Now he's comin' —dar he is, whew!—yaw, yaw, Mars' Harry, what you tink ob dat, hey?" and he finished his remarks with a loud guffaw, as he safely landed a fine catfish of fifteen or twenty pounds on the bank. After a few words of praise and commendation, we all turned our strict attention to our respective lines. As for Tully, he was too overjoyed to keep still; so, after baiting his hook anew, he sat down by the side of his prize and commenced examining it with evident satisfaction, talking all the while in the most serious of tones. "Golly," I heard him say, "de mouf of dis ere fish am just like de heel of a nigger's foot; it am de biggest part of the whole consarn;" and thus he kept on until the motion of his line indicated another attack.

Thus a couple of hours passed away, during which time we caught several fine fish, when, getting tired of the monotonous sport, I took my gun and strolled off in the woods, promising to be back in an hour or two. Now, perhaps the innocent reader of these pages thinks that I wanted to shoot something; but let me dispel all such thoughts by declaring nothing was further from my purpose. Nothing less than a fat turkey-gobbler would have tempted me to draw a bead, and as that strutting dandy did not appear, I walked on in silence until, coming to a maple that had bent its huge trunk directly over the river's edge, I climbed up in its branches, and there, secure from all reptiles, I gave myself up to a delightful reverie. What strange thoughts flitted through my mind! First, came the shadowy ghosts of the dim past, when De Soto with his handful of followers marched through these unbroken wilds,—perhaps he crossed the river at this very spot after his terrible battle with the Manhilians, when their noble chieftain, Tuscaloosa, the black warrior of that brave and chivalrous tribe, fell at the head of his men, overcome by the superior weapons of his foes; in imagination I saw the light canoes of the red men ascending and descending the tranquil stream, freighted with wild game or fish for the distant camp: then came the low murmur of advancing civilization, afar off at first, but nearer and nearer until at last the flat-boats of the French settlers plowed their way slowly against the current, while the sharp crack of the pioneer's rifle and the dull sound of the woodman's ax echoed amid these old forests and along these hills.

All this, and much more, of the "long ago" flitted through my mind; then came the present with pompous tread and lordly mien. A steamer with a company of soldiers on board glided by, while flags were flying to the breeze, and silken banners glistened in the bright sunlight. What sad reflections it called up!—too sad to dwell upon.

Suddenly a mocking-bird alighted on the topmost branch above me, and commenced mimicking the various birds that were singing near by. First, the harsh cry of the jay echoed wildly among the old trees, then the shrill scream of the hawk, and now the more musical song of the thrush, followed by the mournful cooing of the dove, and thus through the whole category, so true to nature that the birds around us ceased their notes and seemed to listen in mute despair, to hear their own peculiar songs executed better than they could perform them. Chancing to change my position, the bird saw me; then, knowing that he had a listener, he ceased his mimicry and commenced one of his most ravishing songs. In perfect ecstasy, his tiny throat swollen, he poured forth his richest notes, now swaying to and fro on a slender twig; anon, like an excessively happy school-boy, it hopped from branch to branch, intoxicated with delight, yet never losing a note in his unrivaled song. For thirty-five minutes he sung thus, when the distant cry of a cat-bird arrested his attention, and, breaking off as suddenly as he commenced, he again essayed his powers at mimicry. We cannot resist quoting Wilde's beautiful sonnet to the mocking-bird, which we deem not only appropriate to the occasion, but exquisitely beautiful and true to nature:

"Wing'd mimic of the woods! thou motley fool!
Who shall thy gay buffoonery describe?
Thine ever-ready notes of ridicule
Pursue thy fellows still with jest and jibe:
Wit, sophist, songster, Yorick of thy tribe,
Thou sportive satirist of Nature's school,
To thee the palm of scoffing we ascribe—
Arch-mocker and mad Abbot of misrule!
For such thou art by day,—but all night long
Thou pour'st a soft, sweet, pensive, solemn strain,
As if thou didst in this thy moonlight song,
Like to the melancholy Jacques complain,
Musing on falsehood, folly, vice, and wrong,
And sighing for thy motley coat again."

"Well, now, if yer haint got up in dat ar tree to roost. We'se been a lookin' and a lookin' for yer the last half hour. Dinner's ready, and we'se all waitin' to go home. Cotched more fish than I can tote,—have to send down arter 'em," and Tully stood before me after his speech, cap in hand, awaiting my descent from my "roost." The mocking-bird ended his song abruptly at the sound of a human voice and sped away to the regions of civilization, while I followed Tully slowly down to the fishing ground, where "Mars' Harry was a waitin'," and from thence we hastened to the house, where we found an excellent dinner awaiting us.

The afternoon was passed amid books, and pictures, and flowers, and fair faces, and warm hearts, and most pleasantly, too, as the reader can readily perceive.

Ala., April 29, 1861. H. S. W.

INVENTIONS APPERTAINING TO COACH-MAKING, AT HOME.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS.

*** TO INVENTORS.—Persons who have made improvements in, or hold the right to dispose of, inventions relating to carriages, will find this Magazine the best medium through which to advertise their patents. It is taken by, and has a very large circulation among, coach-makers in every State of this Union, Canada, and a respectable circulation in England. The terms, which are very liberal, will be made known by letter, to correspondents, when directed to the Editor.

March 5. IMPROVED MODE OF REGULATING THE SPEED OF VEHICLES MOVED BY MECHANICAL POWER.—John Griffin, of Louisville, Ky.: I claim the arrangement of the two connecting-rods, K M, attached respectively to the cranks, L N, of the axles, D, and shafts, O,—the latter, when in use, being connected to the axles by the gearing, *g h* Q, substantially as and for the purpose set forth.

IMPROVEMENT IN BRUSHES.—T. J. Mayall, of Roxbury, Mass.: I claim my new mode of securing bristles or other materials used in brushes, by fixing them in a setting or stock of india-rubber or gutta-percha, substantially in the manner described, so that the said bristles shall be firmly held in their places, and clasped by virtue of the elastic force of the india-rubber or gutta-percha, and their setting protected against the action of water or other agents to which they might be exposed in the use of the brush.

March 12. IMPROVEMENT IN BRAKES FOR SLEIGHS.—M. B. Lord and S. J. Lord, of Ellsworth, Maine: We claim the arrangement of the cams, *d*, pivoted to the ends of the sliding-arms, E, and operating in combination with the cranks, *a*, and with the draught-pole, D, in the manner and for the purpose specified.

IMPROVED WAGON-WRENCH.—G. B. Phillips (assignor to J. S. Littell), of Newark, N. J.: I claim, as a new article of manufacture, the wrench described in the foregoing specification, and represented in the accompanying drawing.

IMPROVEMENT IN HOLLOW AUGERS.—Arcalous Wyckoff and Lafayette Stevens, of Elmira, N. Y., assignors to Arcalous Wyckoff, aforesaid: We claim constructing the cutter-head of annular augers by the combination of two rings, first accurately fitted together by annular tongue and groove respectively, and in the adjacent surfaces thereof, and then, by dividing one ring into sections of separate cutters, *d d*, and properly finishing and hardening them, while the other ring, *f*, remains entire and unchanged from its original accurate form, so that, upon attaching the sections to the entire ring by screws or otherwise, unerring accuracy of form and perfection of parts are secured, substantially as specified.

We also claim the advance terminal point, *m*, of the prime cutter, *i*, constructed and operating substantially in the manner and for the purpose shown and described.

IMPROVEMENT (ADDITIONAL) IN ATTACHING THILLS TO VEHICLES, Patented April 12, 1859. See Vol. II., p. 18.—Douglas Bly, of Rochester, N. Y.: I claim the tightening-block, D, in combination with the movable collar, G, and the nut, H, substantially as and for the purpose specified.

March 19. IMPROVED MODE OF ATTACHING TRACES TO WHIFFLETREES.—Luther Humiston, of New Haven, Conn.: I claim the use of the socket, A, with its projecting stud, B, and hook or cock-eye, C, in combination with the elbow-shaped lever, D, when the whole is constructed and fitted for use, substantially as described.

IMPROVEMENT IN HAND TRUCKS.—W. C. Rentgen, of Keokuk, Iowa: I claim the arrangement of auxiliary wheels, *b b*, in the rear ends of the truck frame, relatively to the main wheels, B B, and the curved adjustable holding and stop-bar, D, substantially as and for the purposes set forth.

March 26. IMPROVED REGISTER FOR OMNIBUSES, &c.—Felix Brunen, of Philadelphia, Pa.: I claim, *first*, one or more levers, H, each having a spring-dog, *a*, or its equivalent, in combination with a graduated ratchet wheel or wheels, E, the screwed spindle, F, and graduated bar, G, the whole being arranged and operating substantially as and for the purpose set forth.

Second, I claim the pin, *f*, with its cut-away or eccentric end in combination with the lever, H, a spring-dog, *a*, and the ratchet wheel, E, the whole being arranged substantially as set forth for the purpose specified.

IMPROVED OMNIBUS REGISTER.—E. S. Dawson and A. Weeks, of Syracuse, N. Y.: We claim the arrangement of vibrating frame, H, with ratchet, *r s* 2, and *t*, and arms, *s r* and *w*, friction springs, *p p p*, in combination with drums, C and D, wheel, G, all constructed and operating to produce a numerical series by revolving wheels, substantially as and for the purposes specified.

IMPROVEMENT IN HEMP CARTS.—Z. Feagan, of Palmyra, Mo.: I claim a cart constructed with the thills pivoted at F, as set forth, and held in position, when loaded, by bar, D, in combination with the windlass, G, and binding cord, C, all being arranged as and for the purposes specified.

IMPROVED ARRANGEMENT OF CARRIAGE-SPRINGS.—Thomas Phillips, of Ann Arbor, Mich.: I claim the tubular rafters, C, when constructed of two longitudinal parts, *a a*, provided with flances, *b b*, and used in connection with plates, D, the edges or sides of which are secured between the flances, *b*, and bent so as to form gutters, *d d*, within the rafters, to operate as and for the purposes set forth.

IMPROVEMENT IN DUMPING-WAGONS.—J. W. Nye, of Fairfield, Vt., assignor to himself and G. W. Ball, of St. Albans, Vt.: I claim the improved dumping-wagon, as constructed with the divisional partitions, G, G 1, G 2, G 3, arranged and combined, and so as to operate as described, with hinged bottoms or platforms, H, H 1, H 2, H 3, applied to the wagon body, A, and disposed therein, and with respect to one another, substantially as specified.

April 2. IMPROVEMENT IN THE BOXES OF CARRIAGE-HUBS.—J. A. Cramer, of Brooklyn, N. Y.: I claim the conical or wedged shape nut B, Figs. 1 and 2, on the end of the box, A, for the double purpose of wedging and clamping the hub on the said box, substantially in the manner and for the purpose described.

IMPROVEMENT IN BRAKES FOR CARRIAGES.—J. E. Briggs, of Watertown, N. Y.: I claim the combination with a draught-pole, E, which is allowed to have an endwise movement between the hounds, C C, of the brake-bar, G, levers, H H, rods, K K, transverse-bar, J, and the stop-rod, L, all arranged and operating substantially as and for the purposes set forth.

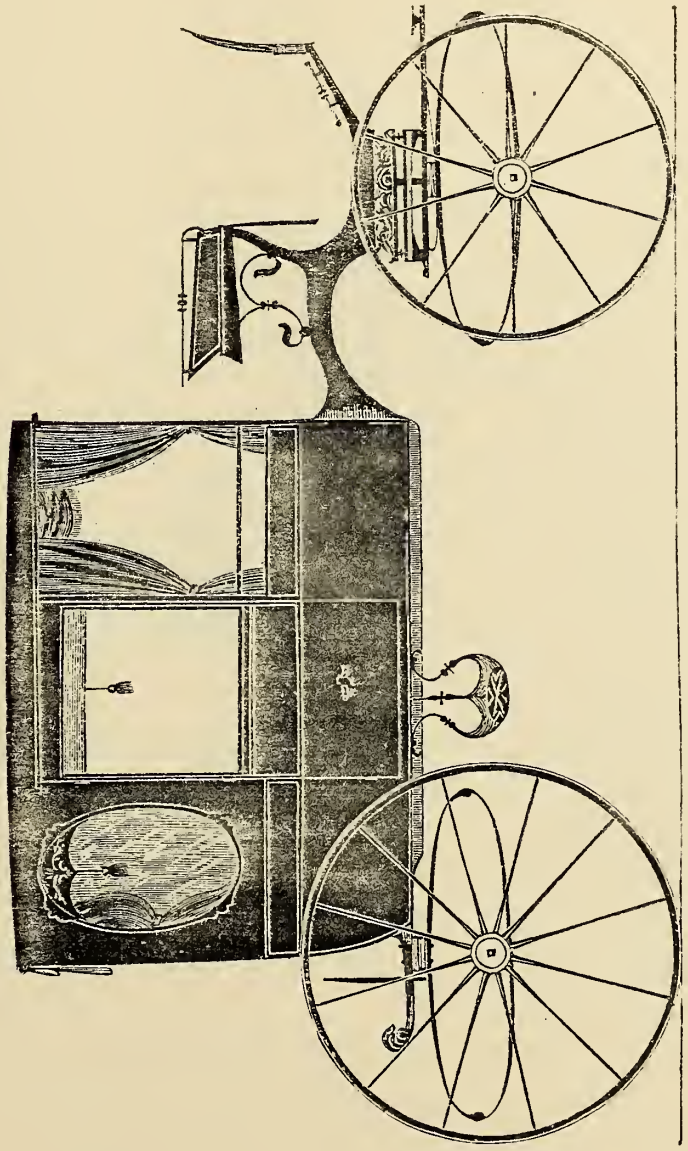
IMPROVEMENT IN CARRIAGE-SPRINGS.—P. G. Gardiner, of New York City: I claim, *first*, The construction of a carriage or other spring, substantially as described, by combining with an upper elastic blade of a convex form, outwardly an ogee-shaped under-blade, in the manner and for the purposes set forth.

Second, In combination with a spring made of two blades connected at their ends, as shown and described, I claim making the under-blade of such length in relation to the upper as that the two blades shall be prevented from coming in contact at their centers, whatever the superincumbent weight or load may be.

IMPROVED WAGON-BRAKE.—Josiah Long (assignor to J. G. Wolf), of Morristown, Ind.: I claim, *first*, The employment of the screw coupling, *e*, and screw adjustment, *g*, for the purpose of enabling the brakes of the hind and fore wheels to be used either separately or combined, substantially as set forth.

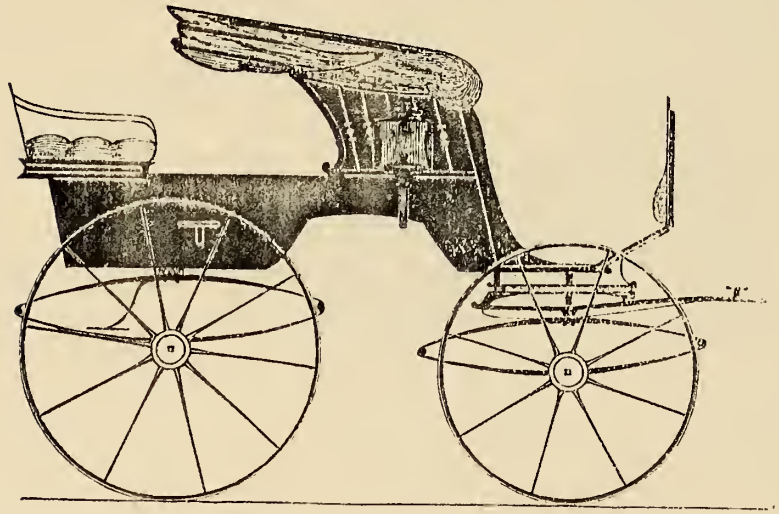
Second, I claim the arrangement of levers, *p p*, screw coupling-rod, *e*, screw adjustment, *g*, connecting-rods, *f f*, lever, *i*, doubletree, E, and levers, *d d d d*, for the purpose set forth and described.

IMPROVEMENT IN WAGON-BRAKES.—Porter Seward, of Chaseville, N. Y.: I claim the arrangement of the crank, G, pulley, *e*, chain, *f*, and adjustable rod, H, with the draft-pole, F, lever, I, spring, K, brake-bars, J J, rods, *g g*, and pivoted rubbing-blocks, *r r*, all in the manner and for the purpose shown and described.



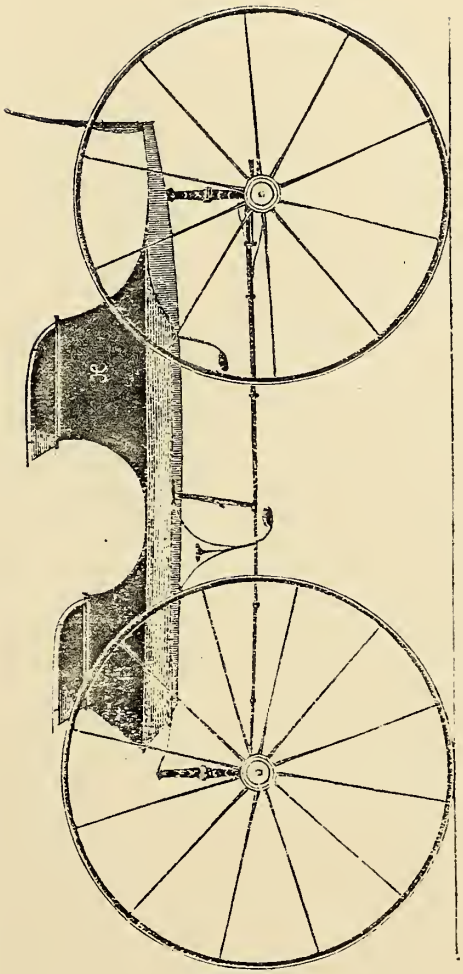
COACHEE ROCKAWAY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 30.



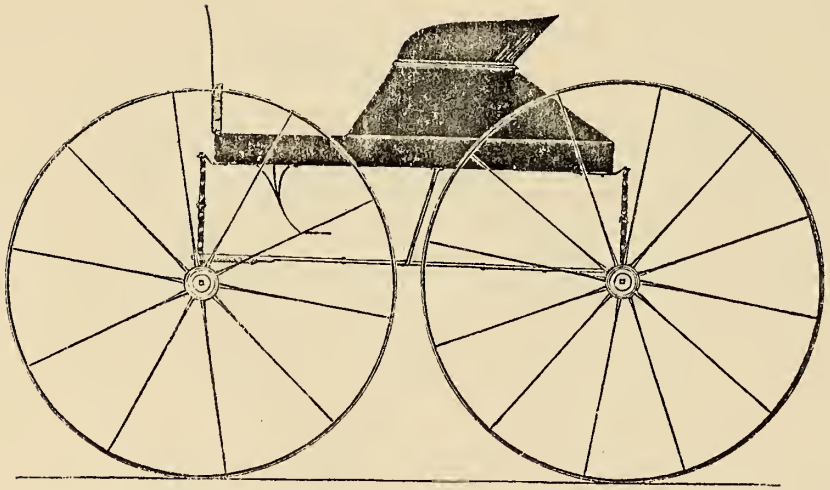
ENGLISH GENTLEMAN'S MAIL PHAETON.—½ IN. SCALE.

From MESSRS. HOOPER & Co., *London, for the New York Coach-maker's Magazine.*—*Explained on page 30.*



YACHT BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 30.



SQUARE TROTTING BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine. *Explained on page 30.*

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DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, JULY, 1861. No. 2.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

IS THE SO-CALLED FRENCH RULE IMPERFECT?

BY R. LURKINS.

(*Concluded from page* 3.)

The author joins issue with his "wiry-bearded" friend—The outside curvature of the arm-rail—The necessity of the third curve for arm-rails on the cant advocated—Mr. D.'s queries answered in extenso.

I will now proceed to discuss the points at issue with my *wiry-bearded friend* (see on pp. 179, 199, 208, of Volume Three). *First*, The outside curvature of the arm-rail: In this, Mr. D. seems to adopt the error which I complained of—that of making its *projection* the same as the top-rail. I contend that it should be straighter. (Refer to Fig. 1.) If the point *l* were projected by the common rule it would fall on the top-rail curve; being above any turn-under of the standing-pillar. As we go forward, we find the arm-rail to drop below where the standing-pillar begins to turn under; consequently, it must be projected correspondingly inside the top-rail curve, and is straighter. Upon a little reflection, this will evidently be seen to be the case, whenever there is much drop-down in the arm-rail, below where the standing-pillar turns under. The thickness of the arm-rail should be the same as projected on the cant-board, allowing a little fullness, for paneling may spring it in some. I have found that generally to be the case; consequently Mr. D.'s method is not so far out of the way practically as it is theoretically. I alluded to a case, in my letter, where the projection of the arm-rail might be straight, and yet the body have considerable swell. Suppose the corner pillar of a body, where the arm-rail is let in, should be thicker than the bottom-side, and the pillar should begin to get thinner immediately below the arm-rail; it is evident that there would be a line on the side of the body equally distant from the plane of the bottom-side face. Now, the lower edge of the arm-rail might be in this line, and would be projected in a line parallel with the face of the bottom-side, and might be *gauged* from the face of the rail itself. I think I have said enough to satisfy any one that the curve which we lay off the thickness of the arm-rail by, should not *always* be the same as the top-rail curve—yet in practice it will do in most cases; but the correct principle ought to be understood.

That third curve! I did really think that the glory of the invention was mine. Well! I will content myself by informing the world and the public generally that the idea was original with me. I wish the gentleman had said something of its history and use, that I might know how much credit really does belong to me (?). In Figure 1, we have it practically applied.

In finding the thickness at the point *a*, it is ascertained to be *n d'*, about three inches. This is too much; we want it only two. Set off *n d*, two inches. The surface is required to be modified so as to pass through *d*. For this purpose we pass a perpendicular through the longitudinal ordinate of *a*, at the point *b*; next, take the distance *d d'* in the points of the dividers, and measure on the perpendicular *b c*, to where the standing-pillar curve has turned under from *b c* this distance, at *c*. Now draw a *curved ordinate* for *a*, that shall pass through *c*, instead of *b*. This is the *third curve*, and must be used as a longitudinal ordinate for every point. The simple mechanical contrivance for applying it is as follows:—Let *K L M N* be a board with the necessary lines on it, and tacked to the draft-board in the position represented. Let *C D J I* be another board on which the horizontal projection may be made; this board is intended to slide up or down at right angles to the other board; and is kept in its relative position by the cleat *O*. Dress the edge of this board to agree with *the third curve*, in this case, *I b' f*. To find the thickness by this *contrivance*, slide the movable board till its curved edge coincides with the point; follow the edge of the board as a longitudinal ordinate, and where it crosses the standing-pillar curve, take the distance between this curve and its tangent, and set it off on the perpendicular ordinate, inside the top-rail curve; the distance left to the line *B A*, is the distance of the point from the plane of the bottom-side face, as by the common rule.

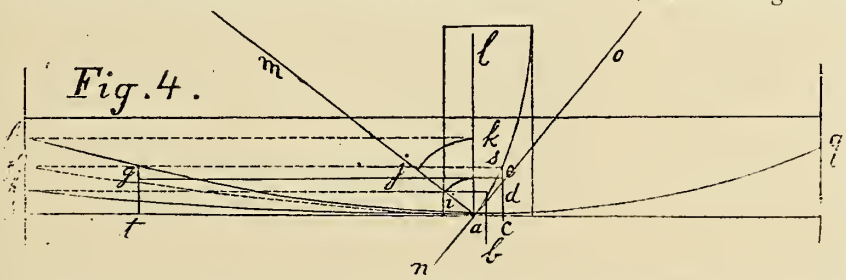
The difference between this *modified* surface and the surface previously described is, that the one would be generated by moving the standing-pillar curve along the top-rail curve, keeping the point of the former curve which corresponds with the shoulder of the pillar in the same horizontal plane (the face of the top-rail). The other surface would be generated, by moving the standing-pillar curve, and keeping said point not in the same horizontal

plane, but raising it up as it goes backward or forward; so as to keep in the the third curve; the shoulder of the pillar should be cut as much lower than is indicated by the draft as the distance between the curved ordinate and its tangent, over the position which the pillar is to take. In the case here given, the longitudinal ordinate curve falls inside the top-rail curve; this is not ordinarily the case, nor can it ever be theoretically, as will be shown in Fig. 2; but it *may* to suit *special* cases.

As to the difficulty at the junction of the corner pillar and bottom-side, I would inform my friend D. that the number of pieces employed would make no difference whatever; since the surface is entirely determined by the forms and movements of the generating curves; and the difficulty will be very evident, whenever there is much *quick turn-under* of the standing-pillar at this height. I would here state, that when the projections are properly made on the movable boards, they may be kept on the bench, and the framing and sweeping may be done from them and the draft-board entirely.

We will now consider that *third curve* theoretically. In generating the side surface of a body, suppose, instead of keeping the plane of the top-rail curve perpendicular to the *plane of the bottom-side face*, we should keep it perpendicular to the *outside surface;* we should have more fullness to the lower part of the body, and a surface more in accordance with surfaces commonly generated by two curves; and at the same time I think it would be more pleasing to the eye—but this is a matter to be settled by taste. If it be settled in the negative, then the curved ordinate will be of but little use, except in particular cases such as Figure 1.

When the *third curve*, or *curved ordinate*, is properly formed, we can get a surface nearly the same as the one produced by moving and changing the position of the top-rail curve, which surface is not very available in practice, being found by a rather complicated process. But it will be but little trouble to find it in one position of the top-rail, which should be at the lower part of the side; and by moving the standing-pillar in accordance with this, we shall get this surface very nearly, as stated above.



To find the modifying curve of which I have been speaking, we have the above figure to refer to.

Draw the top-rail and standing-pillar curves as represented; draw the line *n o*, tangent to the lower part of standing-pillar; next, draw the line *m a*, perpendicular to *n o* at the point of tangency; *m a* represents the plane of the top-rail at this place; draw the perpendicular line *l a;* next, draw perpendiculars at as many places as you will want points to pass the curve through, as at *f* and *g*.

To find the location of a point of the required curve in these perpendiculars.—Suppose we could revolve the plane of the curve *f a q*, about the perpendicular, *l a*, till the plane of the curve should be perpendicular to the plane of the paper; we should have *f* projected on *k*, and the curve entirely in *l a*. Revolve *l a* till it coincides with *m a;* then we shall have *k* falling on *j*. If *f a q* should be revolved back (its plane still retaining the inclination to *l a* of *m a*), we should have *f* falling on *f';* *g* will be found to have dropped in like manner; and the dotted line *f' a* will be the vertical projection of the top-rail curve in its inclined position.

Next, set one point of the dividers at *j*, and the other at *a;* with *j* as a center, carry the point from *a* to the line *f' e*, and from where they intersect, draw the perpendicular *c;* measure on *c* from *f e* to where *c* intersects the standing-pillar curve, and this is the distance that the standing-pillar must rise at *f'* in order to give the required surface; hence, set off the distance *s d* from *p*, on *p f*, and we shall have *h*, the point for the required curve to pass through.

A point in *g t* may be found by a similar process. Take that part of the perpendicular *b* which lies between the pillar-curve and *i d;* set this off from *t*, and we have another point. Thus any number of points may be found for the *theoretical* ordinate, *h a*. This ordinate may be reversed, *i. e.*, turned down, when more than ordinary fullness is required at the junction of the corner-pillar and bottom-side, &c.

I suppose I ought to apologize for spinning out my subject so long. The truth is, I could not find a stopping-place, and I have *slighted* many parts that I might reach the end in a moderate space. If this kind of *material* interests your readers, I have a plenty more left, which I withhold for the present.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 6.)

THE etymology of the term *coach* appears to have escaped the research of industrious antiquarians. Beckman, in his History of Inventions, has undertaken the difficult task of enlightening us, by saying that the word *Kutsche* is of Hungarian extraction, signifying a couch or sofa, and quotes M. Cornides, who says that "it had its rise from a village in the province of Wieselburg, which at present is called *Kitsee*, but was known formerly by the name of *Kotsee*, and that this traveling machine was there invented." It may, however, have been derived from the *caroche* of France, the *caroce* of Italy, and may, with just as much reason, be supposed to have been derived from "couch," meaning in this case, a bed on wheels, or a *wheel-bed*.

Soon after their introduction into England, backed by the influence of royalty, carriages became very popular, as will be seen from reading the chapter found on the second page of Volume Two of this Magazine. The poets of the Elizabethan age were carried away with those "new-fangled ideas," and the satirical writers, watermen, and other classes of the people became so much annoyed by their increase, that finally the government was appealed to, in 1601, to put a stop to it by passing "the bill to restrain the excessive use of coaches in this realm of England." This, however, was rejected, and in its stead the Attorney General was directed to have "some

fit Bill drawn and preferred to the House touching the same, and concerning the use of coaches."

In the "City Madam," one of the plays of Massinger, written about this period, Ann Fingal demands of her courtly admirer that he should bring

> "My caroch,
> Drawn by six Flanders mares, my coachman, groom,
> Postillion and footman,"

which goes to show that, in order to *appear* respectable, coach-riding was necessary at that time.

Bishop Hall called the use of coaches "sin-gentility," and satirizes them thus, by alluding to the postillion :—

> "Is't not a shame to see each homely groome
> Sit perched in an idle chariot roome,
> That were not meete some panel to bestride,
> Sursingled to a galled hackney's hide?"

Markland, in the "Archælogia," says, "So rapid was their increase [speaking of coaches] during the early part of the seventeenth century, that in 1639 upwards of 6,000 coaches appear to have been kept in London and its neighborhood." A very correct idea of the fashion in coaches at this time has been preserved by Markland, copied from that very rare and curious tract entitled "Coach and Sedan : a pleasant dispute for precedence, the Brewer's cart being Moderator. London, 1636."

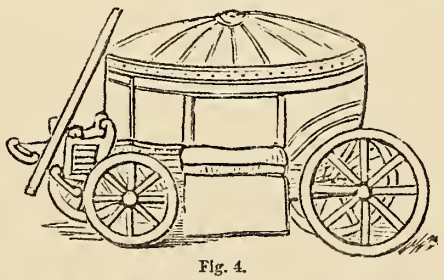


Fig. 4.

Extracts from this tract have already been presented to our readers on page 26 of our second volume. The terms "hell-carts," "sin-guilty," "great hypocrites," and other equally opprobrious names were applied to these vehicles without stint. John Taylor, generally known as the water poet, because in his younger days he followed the occupation of waterman (boatman) on the Thames, imagining, like the shrine-makers at Ephesus, that his craft was in danger, in 1623 published a satirical pamphlet with the design of putting coaches "down." It is entitled, "The World ronnes on Wheeles; or, Odds betwixt Carts and Coaches," illustrated with a singular engraving in which the world is seen dragged along on a set of wheels, by the devil and a fine lady in the fashionable dress of that day.

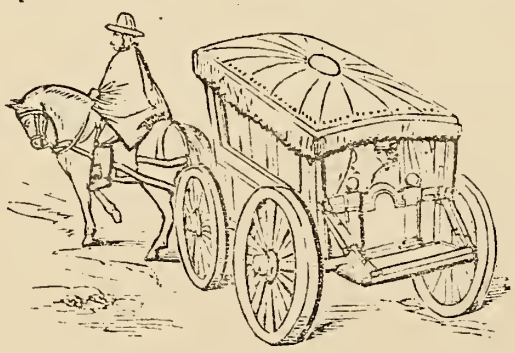


Fig. 5.

Figure 5, copied from Visscher's Views in London, published at Antwerp, represents a coach of the year 1616. This is rather interesting to the coach-maker, as presenting the first example to which a "baggage-rack" is attached. The design is more in accordance with our ideas of an omnibus than of what a coach should be. Carriages thus far had been constructed without springs, and as Taylor sarcastically said, the people had been, up to this time, "tost, tumbled, and jumbled without mercy." How much relieved Taylor must have been after getting off the following: "The coach is a close hypocrite; for it hath a cover for knavery, and curtains to vaile and shadow any wickedness. Besides, like a perpetual cheater, it wears two bootes and no spurs, sometimes having two pair of legs to one boote, and oftentimes (against nature) it makes faire ladies weare the boote; and, if you note, they are carried back to back, like people surprised by pyrats, to be tyed in that misserable manner and thrown overboard into the sea. Moreover, it makes people imitate sea-crabs, in being drawn sideways, as they are when they sit in the boote of the coach; and it is a dangerous kinde of carriage for the commonwealth, if it be considered."

It is agreed that the first hackney-coach, or coach for the public accommodation in London, was in 1634. Garrard thus alludes to it in a letter to Strafford: "I cannot omit to mention any new thing that comes up amongst us, though ever so trivial. There is one Captain Baily; he hath been a sea captain, but now lives on land, about this city, where he tries experiments. He hath erected, according to his ability, some four hackney-coaches, put his men in livery, and appointed them to stand at the Maypole in the strand, giving them instructions at what rates to carry men into several parts of the town, where all day they may be had. Other hackney-men seeing this way, they flocked to the same place, and perform their journeys at the same rate, so that sometimes there is twenty of them together, which disperse up and down, that they and others are to be had everywhere, as watermen are to be had by the water-side. Everybody is much pleased with it [except the watermen of the Thames]; for whereas before coaches could be had but at great rates, now a man may have one much cheaper."

In 1635, the sedan chair seems to have become very

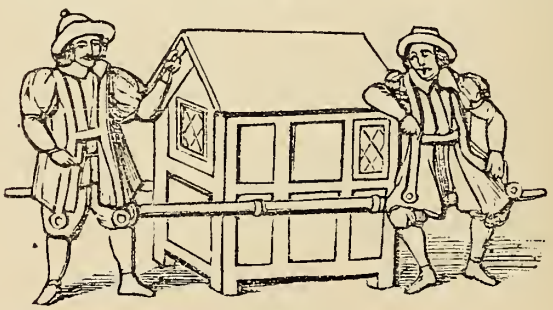


Fig. 6.

popular under the management of Sir Saunders Duncombe, who had received the royal license for the monopoly of "letting them to hire for the term of fourteen years." These sedans, evidently a load without the fares, were so called from the town of Sedan, in France, where they are said to have originated.

About this time the angry war between the watermen and the coaches appears to have changed, and the strife is now between "Coach and Sedan : a pleasant dispute for precedence, the Brewer's cart being Moderator." This will be found related in detail on page 26 of Volume

Two. These sedans appear to have met with less favor than the coaches, and well they might be expected to, as a person (unless an invalid) could travel faster on foot, besides saving his money. These sedans were professed imitations of those used "beyond the sea," but rather more clumsily built than their prototypes, as will be seen from an inspection of Fig. 7, copied from Sandy's Trav-

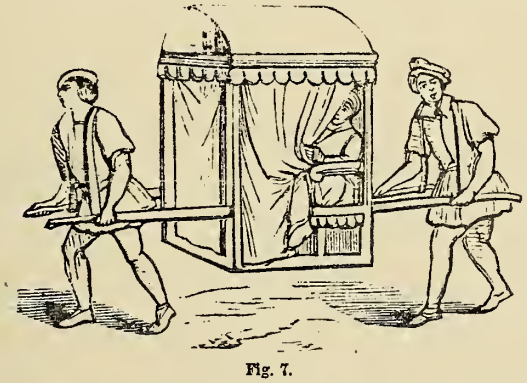


Fig. 7.

els, published in 1615. Having seen them in Naples, they are thus noticed: "The numbers of *carosses* [carriages] is incredible that are kept in this city (Naples), as of the *segges* [sedans], not unlike to horse-litters, but carried by men. These waite for fares at the corners of the streetes, as watermen doe at our wharfes, wherein those that will not foote it in the heat are borne (if they please, unseene) about the city." These sedans, as "degrading Englishmen into slaves and beasts of burden," soon became unpopular, and were only used as horse-litters, as seen in Fig. 8. These were originally used in Pythinia, afterwards introduced into Rome, and then again by the

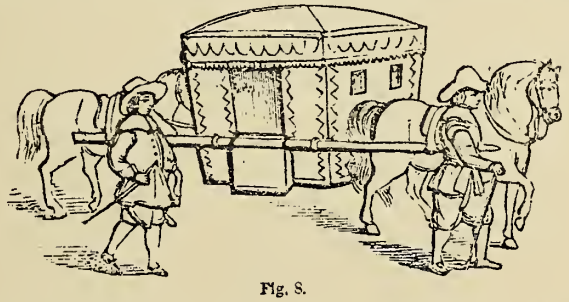


Fig. 8.

Normans into England. They were used in France and Spain on state occasions, as related by Froissart in his Chronicles, and other old authors. Two years after, in 1638, the horse-litter was still in use in England, as we find represented in a curious print by La Serre, of a procession down Cheapside, London, in which the Queen mother, Mary de Medicis is represented, as being in one, on a visit to her daughter, Henrietta Maria, wife of Charles I. The following political squib of Cromwell's time will serve to illustrate *the popularity* of horse-litters in 1680: "Can we forget that horrid accident, when Major-General Skippon came in a horse-litter, wounded, to London? When he passed the Brew-house, near St. John street, a mastiff flew, as at a bear, at one of his horses, and held him so fast that the horse grew mad as a mad dog; the soldiers were so amazed that none had the wit to shoot the mastiff; but the horse-litter, borne between two horses, tossed the Major-General like a dog in a blanket."

Notwithstanding the popular feeling against these litters, still coaches were treated with very little less respect, judging from the following extracts from Collier's "Book of Roxborough Ballads, under the head of "The Coaches' Overthrow:"

"Coach-makers may use many trades,
And yet enough of meanes;
And coach-men may turn off their jades,
And help to drain the fens.
Heigh doune, derry, derry doune,
With the hackney-coaches doune!
The sythe and flail,
Cart and plow-tail,
Doe want them out of toune."

The author of the Ballad seems to view sedans with more favor, perhaps himself keeping them for hire. He continues:—

"I love sedans, cause they do plod
And amble everywhere,
Which prancers are with leather shod,
And ne'er disturb the eare.
Heigh doune, derry, derry doune,
With the hackney-coaches doune!
Their jumpings make
The pavement shake,
Their noise doth mad the toune."

Against all opposition, coaches went on increasing in numbers under Cromwell's government. At the Restoration under Charles II., the coaches are described by D'Avenant as "uneasily hung, and so narrow that I took them for sedans on wheels." This narrow form was given to accommodate them to the narrow streets of London prevailing at the time. After the great fire, when the streets had been widened, the coaches were made wider, and are described as being built closed all round, and covered with leather, ornamented with bright nails, and set off with wheels painted red.

(*To be continued.*)

From the Carriage-Builders' Art Journal.

THE NATURE AND ECONOMY OF DRAUGHT.

SECTION I.

The laws which regulate the property of draught are based upon the theory of the inertia of bodies—of the tendency which is known to exist in them to remain in that state of motion or repose in which they may happen at the time to be.

In order to preserve a direct and forward motion in any particular body, it is necessary continually to supply it with a force of power in the direction in which it is required to move, which will be sufficient to restore what will always be lost by bodies in motion from the opposing forces of friction and gravity. This force could, of course, be supplied by means of a series of concussions; but when a regularity of motion is required, it should be continuous, and not intermittent. The velocity thus attained will always be found to be in proportion to the amount of difference between the momentum of the moving power and the dead weight of the body moved, for no body can communicate to another a greater quantity of motion than it has in itself; and as the amount of motion in every substance is made up of its weight and velocity, it is manifest that, be the speed of a very small body ever so great, it will communicate to one much heavier but a proportionable small degree of velocity.

In the generation of motion by draught, the case is different; for although the velocity with which a body is endued when it leaves its quiescent state will be in proportion to the difference between its own weight and that of the body by which the motion is generated, still, however slowly this may be effected, its velocity will constantly be accelerated so long as the body moved continues to be acted upon by the generating power.

We cannot have a better example than the well-known method of suspending a weight perpendicularly over a pulley, by which the force required to draw carriages along horizontal and inclined planes is generally estimated. The animal power by which the draught on the road is usually affected, is similar in action to that of the weight moving forward with the same velocity as the carriage itself, and causing a constant action upon the carriage with the whole force of its gravity. But we must here observe that the exertion of these powers being limited in the one case by gravity, and in the other by the capacity of the animal, it will be found in the latter case that the maximum or greatest velocity with which the animal can endue the carriage on a *horizontal* plane can never be greater than that of its own motion; and, as this speed is limited by the structure, muscular elasticity and agility of the animal draught employed, so that of the carriage will always be regulated by the velocity with which the animal is capable of constantly overcoming the obstacles that arise in the onward motion of the carriage. In the first production of motion there is always a greater power required than is subsequently needed for its continuation upon the same plane. For the continuation of motion upon horizontal planes the moving power is required to be only something greater than the resistance which the carriage meets with from friction and other ordinary obstacles. In continuing the motion of the carriage up an incline, an increase of power is required; for, in proportion to the elevation of the plane on which it runs, the center of gravity leaves the perpendicular line of the wheel, and thus the load must not only be drawn forward, but raised by the moving power.

In the case of animal draught there are two cardinal points for consideration; and the first object which we should have in view is, that of affording the moving power an opportunity of exerting its greatest possible influence in giving motion to the carriage when in a state of rest. This is effected by placing the horse in such a position as to enable him, for the moment, to exert the whole of his muscular strength. The second is in the facilitating the continuation of the motion thus given, so that the constant exertion of the muscular force required shall be as slight as possible. A great many who have given this subject their attention consider that the line of traction should be oblique, by which means the animal is enabled constantly to exert a lifting as well as a drawing power. Now the oblique line of draught certainly assists the horse in exerting a greater muscular force, but this exertion cannot be kept up for any length of time without a proportionate waste of animal strength, which in this case is exerted with disadvantage, compared with a parallel, or nearly parallel line of traction; it is, as it were, the drawing of the carriage up a hill in which the acclivity is equal to the obliquity of the line of draught. In this manner the first apparent advantage is counteracted by the second, which is that of facilitating the motion first given to a carriage, so as to fatigue the horse as little as possible. Returning again to our primary object, that of facilitating the continuation of motion once given to a carriage, we may remark, that the methods which are adopted by different manufacturers are not only various, but entirely contradictory in their character; for instance, in the case of high and low wheels, both have their respective advocates, though not with the like appearance of reason, as we shall endeavor to show in our next section.

SECTION II.

In facilitating the continuation of the motion first given to a carriage, it is to be remarked, as observed in the last chapter, that the animal supplies the place of both weight and pulley, drawing the carriage along partly by means of the weight of its body, and partly by the elastic force of its muscles, its center of gravity alternately rising and falling as it moves in the rectilinear direction of the motion of the carriage, such center being lifted up repeatedly, and at the same time thrown forward by the extension of the muscles acting in one direction against the ground, and in the other against the center of gravity. For in whatever line of traction the carriage may be, drawn against the ground, the animal acts obliquely.

When the animal stands still, and the line of traction is parallel to the plane on which it moves, the natural compression of the muscles is in proportion only to the weight of its body; and its capability of draught may, by increasing the compression artificially, be increased, as also the elastic force of its muscles; this may be done either by making the line of traction oblique to the horizon, or by placing a part of the weight on its back. In the former case, as the perpendicular pressure is transferred to the animal by being taken off the plane by the line of traction, it is consequently by such line of draught the more fatigued, notwithstanding it is enabled the more effectively to exert itself.

It is for this very reason, indeed, that it is the more fatigued; as being continually compelled to sustain the weight of the carriage, or what amounts to the same thing, to contract its muscles in the attempt to lift it, and so the muscles are the more compressed; and although, in consequence of this, they operate with additional elastic power, the animal, to the extent that the muscles act under this compression, is always fatigued.

If this conclusion be doubted, for the sake of experiment, let any man push constantly against an immovable object, while another acts in the same way against a movable one rolling or sliding before him; the former if he exert the same force, though standing still, will be as much fatigued as the latter, who follows the object which he pushes. To ascertain how long the arm can support the contraction and play of the muscles necessary to keep it in an extended horizontal position, efforts are repeatedly made, and the exertion of power, with the fatigue, which results are very perceptible, and well known to all who have made the attempt. If, however, the several muscles of the body are contracted by stopping so far as to be enabled to lift two weights, one in each hand, perpendicularly from the ground, if the weights are considerable, he must stoop so low, and contract the muscles so much, that it is impossible to remain in that position long without being tortured by fatigue. It results, therefore, that although the oblique line of traction is useful to put carriages in motion, it is, when a velocity has been once obtained, and has arrived at its maximum, improper

merely for the continuation of the motion; in such case the animal should continue to move with the least possible compression of the muscles. In the latter case (viz., laying the weight on the back), unless with intention of aiding in an extraordinary and momentary effort, the horse, by being made to support what could be so much more easily drawn, would be uselessly fatigued.

For the New York Coach-maker's Magazine.

A BRIEF TREATISE ON THE MECHANICS OF WHEEL-CARRIAGES.

[THE following article is copied from an "Encyclopædia; or a Dictionary of Arts, Sciences, and Miscellaneous Literature," &c., &c., first American edition, printed in Philadelphia in the year 1798. As but few of the readers of THE COACH-MAKER'S MAGAZINE will have an opportunity of referring to that work, its republication may be considered a treasure,—the principles being sound and philosophical, and such as are not affected by time. It is too good to be lost in the oblivion of past ages. From these considerations it is communicated for your pages.—R. L.]

Wheel-carriages in general signify all kinds of machines furnished with wheels, for drawing great weights by means of the strength of animals or otherwise.

1. SLEDGES USED BEFORE WHEEL-CARRIAGES.

It is very probable that, in the infancy of the arts, sledges were used before wheels were invented, or at least before the application of them became very general, Homer mentions them as employed in bringing wood for the funeral of Patrocles; though it is not to be doubted that the Greeks at that time were acquainted with the use of wheels, as the same poet mentions them on all occasion when speaking of the war-chariot of his heroes. It is possible, therefore, that by the country people, for inferior purposes, sledges might be employed, while wheel-carriages were confined to those of superior rank, or used only for war-chariots. It is not long ago, indeed, since sledges were used for certain purposes in Britain, notwithstanding the number of wheel-carriages used in it from time immemorial. In some of the cold countries where ice is met with in great quantity, and the ground is covered with frozen snow for a great part of the year, sledges are still used, and run upon the smooth surfaces of these bodies with as great ease as wheels run upon the ordinary ground. Upon very smooth ice, indeed, or upon any body perfectly smooth, wheels would not turn at all; for the only reason why they turn in the ordinary way is the continual inequality they meet with. If we suppose the wheels to be carried in the air, it is plain that they would not turn, there being nothing to put any part in motion more than another; and the same would be the case if we could suppose ice, or any other body, to be so smooth that it would give as little resistance as air. On common roads, however, the wheels meet with obstructions at the bottom, which retard that part, and in consequence of this the upper part moves forward, and a circulating motion immediately begins to take place. By means of this circulating motion the friction becomes very much less than what it would be if the weight were drawn along the ground upon a sledge, insomuch that, according to the computation of Dr. Heltham, a four-wheeled carriage may be drawn with five times as much ease as one that slides upon the same surface, as a sledge.

2. OBSTACLES WHICH OCCUR TO THE MOTION OF CARRIAGES.

The structure of wheel-carriages is so generally known that it is needless to describe them. In the construction of them, however, there are several particulars to be observed which may render one method of construction preferable to another, though there may be a general similarity between one carriage and another. In order to ascertain the most proper method of constructing them, it will first be necessary to consider the obstacles which occur to their motion. These are,

1. The *vis inertiæ* of matter. This, though for a considerable time supposed to be a principle of mere *inactivity*, or *resistance* to any change of state, from motion to rest in material bodies, is now almost exploded. Mr. Anstice, in a late treatise on wheel-carriages, supposes the philosophers who maintain the existence of such a principle to have mistaken Sir Isaac Newton and other great men. According to him, they meant no more by the *vis inertiæ* of matter than a mere passiveness in it, by which it was supposed to abide in that state, either of rest or motion, in which it originally was, "whereby it alters not its state but in proportion to the quantity of power exerted against it. Thus, should a body of any given weight or quantity, moving with a certain degree of velocity, strike another body at rest, of the same weight, it would communicate half its motion (*velocity*) to that body, and they would move together with the same velocity (*momentum*) as the first; but this proceeds from no principle of the body at rest to resist motion; it does not destroy in the other more than it receives from it; therefore no motion is lost—it is only divided; and the two after divisions have a power equal to that of the one before it, with the whole velocity of motion. Indeed, when we consider that the least degree of motion in any body, however small, will communicate some degree of it to the largest in the universe; and that, on the contrary, none but an equal degree of impetus can deprive a body of actual motion, and that immediately opposed to it. Add to this, that since all matter within the reach of our observation, and by analogy we have reason to think it is in actual and rapid motion, impressed on it by its great Creator, and co-existent with it, we may conclude, that if matter do not affect, it is more liable to motion than to rest."

2. *Friction.*—By this is meant the quantity of motion destroyed by bodies sliding over one another, and which is in proportion to weights laid upon them.

Friction depends not only upon the pressure made on the moving bodies, but on the inequalities on the surfaces upon which they move. For as the surfaces of even the most highly polished bodies have some inequalities, whenever two of them are pressed together, the inequalities of the one must enter, and in some degree accommodate themselves, to those of the other; and as the forms of these inequalities are of infinite variety, it is impossible to give any general description which can exactly answer to every one of them.

Mr. Anstice supposes the varieties only to be of two kinds, which he thinks may not be very dissimilar from any that occur. I.—Let us imagine two sliding surfaces, when viewed through a microscope, to present such an appearance as is represented in Fig. 1, in which A is the sliding body to be moved

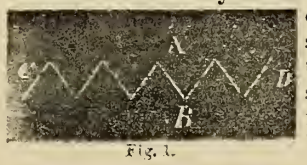


Fig. 1.

in the direction C D over the fixed body D. To effect this, it is evident, that either the teeth must be violently broken off, or a power applied to them sufficient to make them slide upon each other on the principles of the inclined plane, in which case the friction must always be in proportion to the weight of the slider and that with which it is loaded, without regard to the length or breadth of the bearing surface: for if only one pound rested upon one tooth, there would be no more but that pound to be lifted. If the pound rested upon two teeth, there would be only half a pound to be lifted over each, and so on to any number; but if we suppose the teeth to be of such a shape, that they cannot act as inclined planes, let them be ever so strong, we must calculate the friction in a different manner.

Let surfaces of this kind be represented by Fig. 2, in which case it is evident, that instead of depending on the weight or pressure only, it will be in proportion to the number and strength of the teeth so locked together; or, in other words, on the length and breadth of the rubbing surfaces. On this supposition, the weight of the slider would have little or no effect in breaking the teeth, or hindering its being done by the power applied in the longitudinal direction; but if one tooth is to be broken, it will be necessary to apply twice that power to break two, thrice the power to break three, &c. Hence it is evidently impossible to form any general rule concerning the friction which takes place on this principle. As experience, however, has shown that two bricks, or other bodies of that kind, are almost as easily drawn along a table when placed side by side, as when laid upon each other, it seems probable that such a locking of parts seldom occurs, and, when it does, the obstacles are soon broken down. Yet it is certain that some such thing must take place on all occasions, otherwise the wearing of bodies which rub upon one another could not happen.

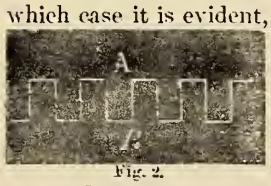
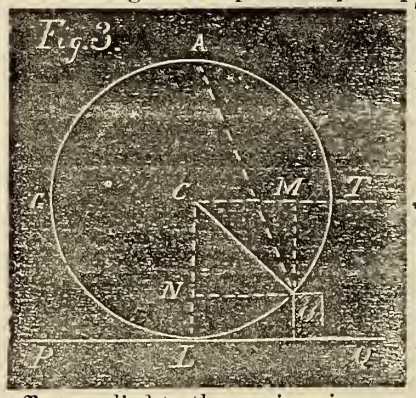


Fig. 2.

From what has been said it must appear plain, that if a slider be laid on a horizontal plane, it must remain at rest; though by a very small force, such as is barely sufficient to overcome the friction, it will be set in motion; because, on a plane quite horizontal, the motion of any body does not remove it in the least farther from the point to which it is attracted by the force of gravity. If the plane be inclined to the horizon, then, besides the power necessary to overcome the friction, it will be necessary to have one sufficient also to overcome that of gravity, by which it is determined to roll down the plane; the proportion of which is ascertained under *Inclined Plane*. The difficulty of raising great weights in this manner, however, where the ascent is steep and the ways rough, must necessarily be so great that sledges could not be used with any advantage, and therefore wheels are indispensable.

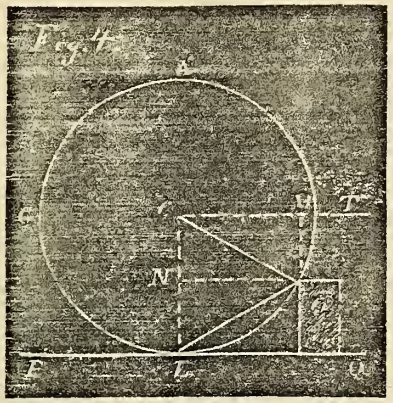
The advantage of wheels over sledges may be further understood from the following considerations: I.—A sledge in sliding over a plane suffers a friction equivalent to the distance through which it moves; but if we apply to it an axle, the circumference of which is six inches, and the wheels eighteen feet, it is plain that moving the carriage eighteen feet over the plane the wheels will make but one revolution; and as there is no sliding of parts between the plane and the wheels, but only a mere change of surface, no friction can take place there, the whole being transferred to the nave acting on the axle, so that the only sliding of parts has been betwixt the inside of the nave and the axle, which, if they fit one another exactly, is no more than six inches; and hence it is plain that the friction must be reduced in the proportion of one to thirty-six. Another advantage is also gained by having the surfaces confined to such a small extent, by which means they may be more easily kept smooth and fitted to each other. The only inconvenience is the height of the wheel, which must in all cases be added to that of the carriage itself.

It has been a matter of no little consideration whether the wheels of a carriage ought to be small or large; and this subject Mr. Anstice has treated in a very particular manner. He observes that in the overcoming of such obstacles as are commonly met with in roads, wheels act as mechanical powers, and therefore the size of the wheel must be regulated upon the principles of these powers. Thus, let the circle O T A G L, Fig. 3, represent a wheel of four feet diameter, placed on the level P Q, and opposed in that line by the obstacle O, which is supposed to be 7.03 inches in height, the line in which the carriage is drawn being C T, parallel to the plane P Q.

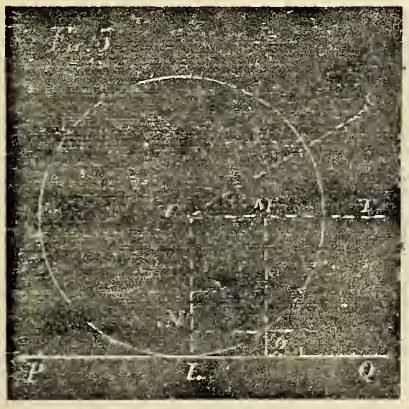


In this case the effort applied to the carriage is communicated to the nave of the wheel where it touches the axle. This part, therefore, represents the part of the lever to which the power is applied, and is the point C in the figure. As the turning point is that where the wheel touches the obstacle, that must represent the fulcrum of the lever; whence that arm of the lever will be represented by C O, which may be supposed a spoke of a wheel, and as the upright spoke C L is in the line which bears the whole weight from the axle, and in which it is to be lifted; hence that part of the circumference of wheel which is between the fulcrum and the upright spoke bearing on it must represent the arm of the lever which is to raise the weight. In this case neither the weight nor the power acts at right angles to their respective arms of the lever, so that we must represent their powers by the imaginary lines M O and O N. As the length of O M, therefore, is to that of O N, so is the proportion required to the weight to balance it on the obstacle, when rising over it; and as in this case the arms are equal, it is plain that the powers must be so likewise. Every obstacle, therefore, exceeding this height, which is as 7.03 to 48, will require a power acting parallel to the plane greater than the weight drawn; and every obstacle whose height bears a small proportion to that of the nave, must be overcome by a smaller power.

Again, let a wheel of four feet diameter be represented by the circle in Fig. 4, and supposed to be moved along the plane P Q, and an obstacle of twelve inches height be placed before it, the real lever will then be represented by the lines L O C, which being reduced to the im-



aginary ones M O N, shows that the power is greater than the weight. By the same rule, if an obstacle of three inches be placed in the way of a wheel, as in Fig. 5, the power required to move the wheel will be considerable less than the weight, though it is plain that the proportion of power must always be according to the size of the wheel, the height of the obstacle, and the direction in which the carriage is drawn. For instance, if the line of traction in Fig. 5 be raised into the direction C S, the power required to move the carriage over it will be to the real weight as the line C O is to the line O N; and in consequence of thus altering the direction, gain as much as the length of the line C O exceeds that of C N.



(To be continued.)

NOTE.—The word *velocity* has been inserted in parentheses, to be substituted for motion; and *momentum* for velocity. These words formerly were not used according to their present technical signification. Velocity, now, signifies the speed with which a body changes its place, or the measure of its speed through space. Momentum is the force with which a body moves, and is the product of its weight and velocity. Hence, making no allowance for friction, if a body moving with a velocity of 100 feet per second should strike a body of equal weight at rest, the two would move together at a velocity of 50 feet per second; and their power to displace any other body would be the same as that of the one body moving with a velocity of 100 feet per second; therefore no force is lost or gained by the collision. R. L.

SHYING HORSES.

THE principal cause of horses shying are imperfect vision, or near-sightedness, constitutional nervousness, want of exercise—especially when confined in a dark stable—and being unused to certain objects. For the first two causes there is no positive cure, but much may be done by way of amelioration. Many people have a way of forcing a horse that shies immediately up to everything he appears to dread, more for the purpose of showing themselves off as riders than for any benefit such a proceeding would be to the horse. A near-sighted horse should be allowed a reasonable time to examine an object of which he may appear to be afraid, before he is urged with whip and spur to move close up to it, for if the rider insists on his overcoming his fears in an instant, the consequence will be, that when he sees the same or a similar object again, he will remember the last unpleasantness between him and his rider, and prepare himself for a renewal of opposition; and this will increase every time the same rider attempts to force him to the same or any other object which may frighten him. There are a class of men, or rather horse-bullies, who fancy the horse should fear nothing but themselves, and, creating and constantly fostering ill feeling by the application of brute force, as developed in rough-riding, by their cruel and unnecessary use of whips and spurs every time a horse is frightened, they succeed in creating more fear and unsteadiness in shying horses than is produced by natural causes, whatever they may be. There are a variety of objects at which a near-sighted horse will shy, such as a dark spot—horse-droppings and the like—on a white limestone road, a heap of stones on the road-side, meeting or passing a load of hay, an omnibus, or a wheelbarrow; but the most dreaded object is approaching a railway arch when a train is passing over. This, when the horse is in harness, and constitutionally timid, is attended with considerable danger to a novice, and too much cannot be done in the way of soothing him, and allaying his fears by every means in the driver's power; as, for instance, if he be aware of the existence of this infirmity, and can himself see the train at a distance, it would be the wisest step for him to turn the horse's head away from the approaching train before it is near enough to cause much terror, and, carefully alighting, take hold of the near rein with the right hand, and turn his face gradually round to the object of his fears, soothing him with a kindly tone of the voice, and, rubbing his face with the left hand, let him stand to watch the fast receding train fairly out of sight. As these railway arches are most frequently in the country, where there is plenty of room, this may be done without inconvenience. A shying horse will take less notice of a train passing on railways over streets in large towns, because the noise and surrounding objects render this particular one more indistinct and less to be dreaded. Whipping and spurring under these circumstances would probably end in serious mischief. Nothing is so common with persons who are ignorant of a horse's nature, and destitute of common sense and feeling (providing they have the power to sit a horse), as, when he turns round from fear, to commence shaking their arms, head, and shoulders about, and exclaim, "Oh, that's your game, is it?" or some such expression, and, dashing their spurs into his quivering flanks, challenge him at once to a pitched battle, forcing him up to or past the object, which, to the trembling colt, may appear like a mountain ready to fall upon and crush him; and these "horse roughs" then take credit for conquering the brute's temper, as they call it, notwithstanding that he may be as harmless as a child. Ladies or gentlemen who are nervous or indifferent riders, and whose horses are subject to the disagreeable infirmity of shying, would do well to keep them in regular exercise, and when inconvenient for themselves to ride, a patient and sensible groom should be employed to exercise them for at least two hours every day on the same road they are usually ridden by their owners. But, in training colts, a variety of routes should be taken, so as to allow them to see fresh objects every day, until

thoroughly accustomed to most things, animate and inanimate, which it is likely he may hereafter come in contact with. There are few high-couraged horses that do not shy more or less after being kept in the stables a day or two without exercise; some will enjoy themselves, when set at liberty, by capering about like dogs when let loose from a kennel, because they have no other way of testifying their pleasure, and this, by inexperienced horsemen, is erroneously considered vice.

Home Circle.

For the New York Coach-maker's Magazine.

WE DO NOT KNOW OURSELVES.

BY ANNIE M. BEACH.

We do not know ourselves—our hearts,
These palaces of clay,
Have secret cells, to which our skill
Has never found the way.

O! often in some trying hour
We start to find how strong,
Down, deeply hidden, lies the power
To battle with the wrong.

We do not know the strength of will,
The daring, proud and high,
The wealth of thought that, hidden deep,
Within the heart-caves lie,

But revel in the rose-clad bowers
Of love, and life-hopes fond,
Nor strive to lift the mystic latch
To see what lies beyond;

Till, one by one, the roses fade,
And loves and hopes are flown,
And, wearily amid the wreck,
We stand alone, alone.

Then, as the life-storm onward sweeps,
We burst the untried door;
And lo! around us rises strength
We never knew before.

I ween that some have lived and died,
And yet have never known
The wealth of thought and strength of will
They might have called their own.

O! not in vain the life-blasts blow,
And sweep our flowers afar,
Not in the rose-paths of the heart
We learn how strong we are;

Not till the world-storms drive us back,
And friends, like flowers depart,
We learn to know the real strength
That dwells within the heart.

CAMBRIA, N. Y.

From The Independent.

SALLY SPUNK.

"DID you ever hear of a little woman called Sally Spunk? She is an awfully sharp, cross old hag, with a loud, scolding voice, and a face as puckered and wrinkled as a baked apple. Everybody hurries and scurries out of the way when she is about; for my part I had rather see a mad dog coming any day than old Sal.

"She is always poking her old nose about wherever there's any children, and trying to make them as sour and as scowling and as discontented as she is herself. She does not seem to have any home of her own, either, but is always watching her opportunity to slip in wherever she can find a place, and lodge for awhile. Her favorite home is in one of the vacant chambers in little children's hearts, where, if she can possibly, by hook or by crook, squeeze herself in, the first thing they know, she has taken possession of the place, and just deliberately turned out Miss Love, or Mr. Good-nature, or little Master Try-to-do-right, or any other nice person that lives there.

"If you once let her get her foot into your premises, I can tell you there is no hope for you, or any other little boy. She will off with her things, and begin to bustle about, and move in her furniture, and, before you can wink, there she is, all settled at housekeeping right under your very nose, blustering and scolding about, and making all her quiet and gentle neighbors perfectly uncomfortable.

"I once knew a little boy, named Tommy Tinder, who had a terrible time with old Sal. She first made his acquaintance when he was a wee bit of a baby, only a year old; and then, as he was too small and tender and weak to manage such a powerful enemy, his mother took it upon herself to fight her off, and she had several real battles with her, I can tell you; but mamma always conquered in the end, and Sal would sneak away like a whipped dog.

"By-and-by, by degrees, as Tommy grew older, Sal became bolder, and was constantly peeping and dodging about as quick and as nimble as a cat after a mouse, popping into his little heart every day, just to take a look, and staying longer each time, till, finally, there was no way of getting her out, and, before anybody knew it, she was actually established there in Miss Love's room, as snug as you please, all her things in order, and looking and acting as if she had always lived there, and the premises belonged to her and nobody else, and pretending she had never heard of Miss Love, whom she had driven out, (would you believe it?) and actually beaten with her broom-handle! Poor little gentle Love!—she wandered about for a long time, looking very sad and disconsolate. By-and-by I'll tell you what became of her.

"The very first day that old Sal took possession of her room, she came near setting the whole house on fire, and always managed to keep such a hot, uncomfortable place, that nobody could stay with her; but she did not care for that, not she! She hated company, and never wanted any but her own noisy tongue. You could always tell when she had too much steam on, for the reflection of the fire would light up Tommy's face, and then, if you listened, you could hear a crackling and fizzing, and, pretty soon, out it would snap and sputter—right out of Tommy's little mouth; and old Sal would send up through that little rosy gate such words as were shocking to hear; then there would be a great blaze; and the next thing her tea-kettle would begin to bubble and boil over, and down would come the drops through Tommy's eyes, and then a whole stream of hot water would blind his eyes and nose, and he would have to bury his head in his mother's lap, and shut his eyes and mouth, lest Sal should take it into her old head to rush up through the open doors with her broomstick, and beat the whole family.

"There was always a very quiet, pleasant time after one of these scuffles with Sal, and it would be so still down in her dominions that Tommy's mamma really thought sometimes she had gone, taken herself and her old traps off—but no such pleasure was in store for them.

Just when they were enjoying the quiet, and trying to make the acquaintance of little Try-to-do-right, and having a nice time, back the old vixen would come, like a firebrand, and set the whole house ablaze again."

"Oh, the hateful old thing," said Charley; "what did that boy let her come back again for?"

"Because," said mamma, "he did not keep close to little Try-to-do-right—if he had, Sal would never have troubled him, for she hated good boys. Mind, Charley, and always stick to Try-to-do-right and his company; you know what I mean, don't you?"

"I guess I know a thing or two," said Charlie, laughing and winking.

"Well," mamma went on, "do you believe that old Sal Spunk staid in that poor little boy's heart and tormented him for years? but at last he got rid of her, and I'll tell you how.

"She became, after a while, so outrageous, and made Tommy so disagreeable that nobody loved him and everybody avoided him. People thought he had actually grown to look like old Sal herself, and he had a sort of puckered, sorry look about his face, and a whining voice, that made him so disagreeable that nobody wanted his society. You may think how sadly his poor mother felt about it, and how many tears she shed over him; but still she was always loving and kind to him, and prayed to God every day to give her little boy a new, clean heart, and take away the bad, soiled heart that old Spunk had so defiled. Often she would take him by the hand, and, kneeling by her bedside, teach him to ask God himself for a new heart; and, as Tommy grew older, he was truly sorry for his sin, and he was grieved and melted with the thought of the trouble he had given his dear mother, whom he loved so much, and he asked God so truly and earnestly to help him that his little prayer reached heaven, and God heard it and gave him strength to drive out this wicked woman and all her crew from his heart, and take back Miss Love, and all the good neighbors. Poor little Love! how glad she was to come back, and what a pleasant time they had afterwards. The neighbors all joined and drove the old hag out—bag and baggage—and then Miss Love, who had been wandering about ever since she was put out of Paradise, not only came back herself, but brought all the pleasant people she could find, and they absolutely took such complete possession of Tommy's heart that he found he could not live without them; and, by-and-by, he married Miss Love, and so they lived in peace, and—that's all. I don't think they died in a pot of grease—as Mother Goose's make-believe people do—because Tommy was always so clean. I can't believe he would choose a pot of grease to die in; and, what's more, he is not dead, either, but is right here at my elbow this minute, looking over my shoulder and laughing at my story!"

ARRANGEMENT BETWEEN LONDON OPERATIVES AND EMPLOYERS.—It appears that the workmen of various trades and their employers, in the City of London, have made arrangements by which it is thought future misunderstandings will be obviated, in the number of hours constituting a day's labor. The employees now work by the hour, so that all left for the Trades' Unions to do is to decide upon a standard of wages per hour, instead of per diem, and the number of hours constituting a day as formerly

Pen Illustrations of the Drafts.

COACHEE ROCKAWAY.

Illustrated on Plate V.

ALTHOUGH we have given about one hundred and twenty different designs for carriages in these pages, still the one we now present differs very essentially from them all. In this design, the Coach and Rockaway are happily combined; thus, while it forms a very convenient and useful carriage, supplies to the extremely fastidious taste something materially different from the ordinary coach. We have supplied an oval window to the back-quarter of this drawing, but for persons wishing a more open carriage this could be finished without the panel and window—left entirely open, as usual with Rockaways—like the front-quarter. Those persons who differ in their tastes from our design for the front seat for the driver, with very little exercise of judgment on their part, can supply a different one, from some one of the many to be found in our three volumes already before the public.

ENGLISH MAIL PHAETON.

Illustrated on Plate VI.

FOR the sketch from which this drawing is made we are indebted to our friends in England, Messrs. Hooper & Co., of the Haymarket, London, who inform us that this is one of the fashionable carriages there this season. It is there called the "Gentleman's Mail Phaeton." It is used in England as a family carriage and for sporting purposes. The back seat is often made reversible. The seats being set very high, gives the vehicle plenty of leg-room, rendering the same very comfortable to the occupants.

YACHT WAGON.

Illustrated on Plate VII.

THERE is considerable novelty about this wagon; sufficient to claim a place in our Journal. The portion of the body represented by the horizontal shading is formed of whitewood, "worked out" concave from the solid, and glued on to the rocker, represented by the vertical tinting. The back corners of the body and seats are rounding. This kind of vehicle requires but little outlay for trimming, the cushions and dash being the principal portion. The painting, if well-executed, will set the body off to good advantage.

SQUARE TROTTING BUGGY.

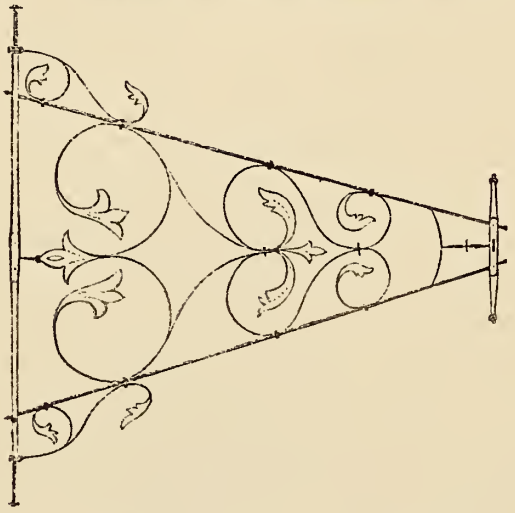
Illustrated on Plate VIII.

WE have been favored with this drawing by Mr. I. W. Britton, of New York city. It furnishes the model for a very plain but neat buggy, in panel, and should be painted jet black, without striping. The back-corners of the seat should be rounding. Trim it with broadcloth. Leather, for light vehicles, is about "played out" in New York city, for the present.

Sparks from the Anvil.

FANCY PERCH-STAYS FOR A BUGGY.

This fanciful design is from Mr. B. F. Winters, of Greensboro, Alabama. It has at least one recommendation—it will promote the interests of the iron merchant, and afford the smith an opportunity to earn his bread, by the extra labor it will entail upon the manufacturer who adopts it. We would not by any means take from our



ingenious friend the credit due to his talents; but, as our readers have learned by this time, these *fancy gew-gaws* really find no favor with our peculiar taste, and therefore we must be excused from indorsing them. They are only practicable with those who get up an article for some fair, and where the more *ridiculous* a buggy can be designed the more apt it will be to receive the premium from the non-mechanical judges who usually award the medals, &c.

A NEW LUBRIC AND VARNISH—HEVEONE.

At a recent meeting of the Academy of Sciences at Paris, M. Matthieu, a maker of surgical instruments, presented a vegetable fat, at the same time viscous and elastic, to which he had given the name of *Heveone*, for the purpose of recalling at the same time, first, that its principal element is the essence of caoutchouc, or caoutchouc highly purified, prepared from *Hevea Guyanensis;* second, that it is prepared at a very high temperature.

This new preparation possesses very remarkable properties, and will be of very great service to many branches of industry. It adheres considerably to the surfaces to which it is applied; does not oxidize under the influence of atmospheric agents; and preserves from rust instruments of iron, steel, copper, or any other polished metal, even when spread over them in an infinitely thin coating. Surgical and domestic instruments, tools and machinery, hunting and other weapons, may be kept perfectly clean and bright.

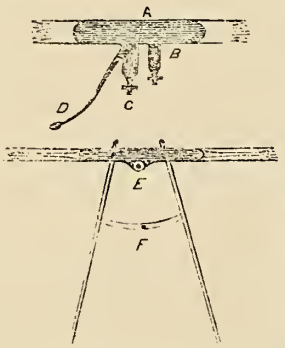
The lubricating properties of *Heveone* are still more extraordinary. Applied to stop-cocks, pistons, valves, pivots, axles, locks, hinges, &c., it makes them play the more easily, inasmuch as it never dries, does not lose its viscosity, does not oxidize, nor combine with the metals.

Heveone, besides, as a coating, impermeable to water, will do much to keep clean and in good order, leather, and objects formed of leather, such as shoes, harness, belts, &c.; it will protect them both from damp and from too great dryness; it makes them very pliable, and renders them imperishable; its salutary effects will extend even to wood, pedestals, panels, wainscoting, &c. We will relate one more very precious property of *Heveone*. In fire-arms coated interiorly with it, there no longer forms any adhesive dust in firing; they will be much more easily cleaned, and when fired frequently in succession, the aim will remain more certain and the range greater.—*Journal of the Franklin Institute.*

For the New York Coach-maker's Magazine.

AN IMPROVED CLIP FOR SPRINGS.

Mr. Editor:—I have made a draft of a clip for clipping on the front spring to a head-block, which is both, neat and efficient. It is made as follows: A, top of the clip on the spring; B, the front portion of the clip running down through the T-plate; C, the back leg of the clip, also passing through the T-plate at the back; D, the brace running back to the stay F, to which it is secured by a bolt in the center; E shows the form of the eye on the T-plate through which the back leg of the clip passes and is secured by a nut on the under side. The entire clip is worked out solid, including the branch-brace. In clipping on the circles and the spring we dispense with any bolts through the axle-trees and head-block by using the clip king-bolt.



Yours, truly, Isaac Dolsen.

Beemerville, N. J.

Paint Room.

For the New York Coach-maker's Magazine.

HOW TO PREVENT PAINT AND VARNISH FROM CRACKING.

Perhaps there is no difficulty which the painter meets with in his trade, which is more imperfectly understood, or which is more easily overcome when understood, than the cracking of paint and varnish after a job has been completed. There are many good painters who do not understand the cause, although they may have had many years' experience in well-regulated shops. The painter who does not understand the cause, when he has spoiled a job, very readily finds an excuse that the "stock was not good," and his employer, equally ignorant, has to accept the excuse as valid. Dealers in varnish often help the error, by warranting varnish not to crack in any climate. The painter and the dealer may be honest, but the fact is, the quality of the oil or varnish has very little, or nothing, to do with the cracking when properly applied. I feel

very positive in this assertion, from a long and practical experience in investigating the subject.

In order to thoroughly understand this subject, it will be necessary to investigate the cause of wood seasoning and checking under certain circumstances. This is an every-day occurrence with which we are all familiar. Now, what is the cause? It certainly is not a repulsive force which one part of wood, or paint, has to the other, that forces it to separate. It is some powerful and natural cause which operates upon it so as to occasion the side exposed to the heat to cleave apart. Wood, when growing, is filled with pores, or small tubes, through which water circulates, and, when severed from the root, and exposed to enough heat to cause evaporation, the water passes off in steam, and these pores or tubes commence closing up tighter, diminishing the size of the wood, which we call shrinking or seasoning. This shrinking, although it operates silently, seems to have a powerful force.

Now let us take a block of wood, with the pores filled with water, and expose it to a heat on one side, so that the water evaporates faster on the outside of the block than it does on the inner part, and every day's experience teaches us the result. The water evaporates on the outside of the block, where it receives the most heat, and the closing up of the pores or shrinking process, which always follows the evaporation of the water, commences; the outside is inclined to become smaller; but, a very little way in the block, where the water has not evaporated, it will not give a particle, but remains of the same size. Two powerful forces are operating against each other, neither of which will give to the other; the consequence is, that in order for the outside to become smaller, it is obliged to open in small seams, which, as the drying goes on, will extend further into the wood. There are various preventatives from season checks, but all are governed by the same principles. For instance, oil applied to the outside of the wood before the drying commences, will, as soon as the water evaporates, take its place in the pores of the wood, which keeps them open, thereby preventing shrinkage on the outside, and consequently cracking. It is well known that wood will not crack if it is kept in a place where the temperature on the inner part is equal, or nearly equal to that of the outer part. Also a very thin piece of wood will not season-crack because the shrinkage is nearly equal in every part.

Paint-and-varnish is governed by the same rules. It is composed of oils and gums which *will not* evaporate; also turpentine or alcohol, which *will* evaporate. The two latter ingredients are used only for their qualities of evaporation, and evaporation cannot take place without shrinkage. We have seen that thin pieces of wood will not crack in drying; now if by any means we could take a number of thin pieces of wood that were perfectly dry, and make them adhere together, one after another, until they had formed a solid block, that block would not season-crack, because there would be nothing to evaporate, consequently one part would not shrink faster than another. This we cannot do with wood, but in paint we can. We commence by laying on a coat not the fiftieth part of an inch in thickness at first; now wait until this first coat has got entirely dry and hard, then apply another; wait until it is dry and hard, then another; and so on until the work is complete, and there will be no cracking of paint or varnish afterwards.

There are those who will say we have certainly seen varnish crack in a week after it had been put on, while, in other cases, other kinds would remain without cracking much longer under the same circumstances. I have seen this myself. Take quick-drying furniture-varnish and apply it over a coat of thick and imperfectly dried paint, then put it in the sun for a week, and it will crack. Take slow-drying coach-varnish, put it on the same paint, and it would remain four or five weeks without cracking. The reason is this. In the furniture varnish the evaporation of the turpentine or volatile oil is done quicker than in the other, and the shrinking commences sooner; but it is only a matter of time; one is as sure as the other to crack. Any one can prove this by experiment. As to the time required for paint to dry, it, of course, varies according to the facilities you have for drying. Under the most favorable circumstances three days will be required for one coat to dry. There is a certain hardness when the workman applies his thumb nail so that he cannot scratch the paint, which is a sure indication to the experienced workman that it is dry enough. Rough stuffing is generally dry enough when it will cut off smoothly with the stone without gumming up. It is better to give it too much than too little time to dry. Painters should purchase a large supply of varnish directly from some respectable factory. There is an increase of full twelve per cent. per annum on the quality; also, when you have become used to one kind for a long time, you know how to correct any imperfection which it may have, by adding oil or turpentine, as it may require. Retail dealers are too apt to undertake this last-mentioned improvement, often to the ruin of the varnish, as well as the manufacturer's reputation.

BERLIN, WIS. H. H.

Trimming Room.

A REMARKABLE CONCESSION.

WE find, in a late number of our lumbering cotemporary across the Atlantic, the following admission as regards the superiority of our carriage-trimming over all others. This is the more remarkable as coming from an Englishman. How the Editor permitted Mr. Edwards to say so much to our credit, is to us unaccountable, short of the hypothesis that he was unwilling to offend his correspondent by suppressing it. Here it is, although couched in very bad English:

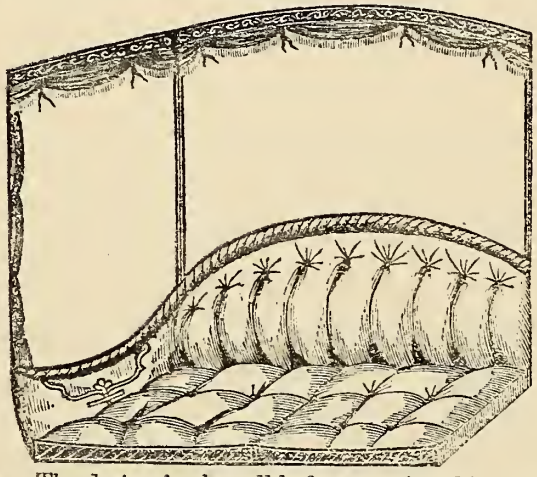
"We shall not expect that every reader of this Journal will agree to our opinion when we state that American workmanship in the trimming department is far ahead of any other country's; but such is the fact. (!) We have seen and had the opinion of many English workmen—trimmers, who have held good situations in London and Dublin; also, the opinion of other workmen in the other branches; and all, without an exception, give the palm of superiority to the American trimmer. (!) In fact, competent English workmen have assured us that they, to make a start upon American work, have to learn their trade over again." (!)

We can assure the writer (as he refers to us) that this

admission is something more than a word of comfort to the "wordy cotemporary," and must have cost "Enoch" a deal of effort to confess, in view of the storm his fellow-countrymen will be apt to raise against him. Probably the colorings he has given to some of his articles, to our discredit, may save to him "his bacon."

TRIMMINGS FOR A ROCKAWAY.

With the exception of the handsome lace nailed around the top, the finish of this design is quite a plain one. The chief novelty we lay claim to is found in the spiral roll running along above the back-lining and arm-



rests. The design in the roll before mentioned is repeated in the cushion-fronts so as to match. In place of a diamond squab in the side-quarters, this is finished with a fancy-shaped flap, underneath which is an ample side-pocket, a very useful appendage for many purposes.

THE CARE OF HARNESS.

Leather is seldom injured by being wet if hung up dry, instead of being left in a mass on the floor or in a corner, where the drying is so slow as to create mold. For general use, harness should be fairly oiled, and for this purpose either pure neat's-foot oil should be used, or the article known by the curriers as "daubing;" and this should be rubbed in while the leather is moist but not wet. The harness should be wrapped up in a wet cloth one day before the application of "daubing" or neat's-foot oil; this should be rubbed on smartly with a brush for a sufficient length of time to insure its entrance into the leather, rather than leave it on its immediate surface. If the leather be positively dry, this substance cannot enter, and therefore the necessity of its being moist and pliant at the time of its application. Varnish should never be applied; it fills the pores and prevents the necessary access of air, causing the leather to become crisp and rigid, and in a short space of time it is rendered tender, causing it to crack, break, &c. Before applying any oily substance to leather, all dirt should be thoroughly removed from its surface, and no other material than lamp-black should ever be mixed with oil where it is necessary to blacken the leather. Shoe-blacking is sometimes used, and always with injurious effects; it frequently contains sulphuric acid, which, when brought in contact with leather, rapidly destroys it. When the leather is very dry, as with boots and shoes, the injury from this cause is not so great. Vegetable oils should never be applied to harness of any kind, for after a while they harden the leather and destroy its usefulness. Leather curtains should never be varnished, but always kept perfectly pliant by very moderate and frequent application of the oils we have named. —*Working Farmer.*

ODDITIES OF INVENTION.

A very high appreciation of that which is simply curious in art was universally entertained in former times. We, more practical than our ancestors, attach higher value to that which is really useful, and curious contrivances of mechanical skill are abandoned to conjurors and toy manufacturers. One or two samples of the kind of inventions which were of old particularly esteemed, may not be uninteresting; but, at the same time, it is necessary to premise that these descriptions, being taken from the accounts which have been bequeathed to us by those who knew little either of science or mechanics, it is not unlikely that some of the statements may be exaggerated, and undue importance have been given to things which would now scarcely excite interest.

Petrus Ramus tells us of a wooden eagle and an iron fly, made by Regiomortanus, a famous mathematician of Nuremberg. The eagle was made to spread its wings, fly in the air, and meeting the Emperor Maximilian some distance from the city gates, salute him, crown him, or something of that sort, and follow him back to his palace. This mechanical eagle—our French neighbors employ a live eagle on similar occasions—is said to have excited great astonishment in all who have witnessed its flight, and a poet has described it:—

—— Mounting from his fist that framed her,
Flew far to meet the German emperor;
And having met him, with her nimble train
And pliant wings, turning about again,
Followed him close unto the castle gate
Of Nuremberg, where all their shows of state,
Streets hanged with arras, arches curious built;
Gray-headed Senate, and youths' gallantries,
Graced not so much as only this device.

The same poet describes the iron-fly:—

Once, as this artist, more with mirth than meat,
Feasted some friends whom he esteemed great,
Forth from his hands an iron fly flew out,
Which, having flown a perfect round-about,
With weary wings returned unto her master,
And as judicious, on his arm he placed her.
O, wit divine, that in the narrow womb
Of a small fly, could find sufficient room
For all these springs, wheels, counterpoises, chains,
Which stood instead of life, and blood, and veins.

In the twentieth year of Queen Elizabeth, Mark Scaliot, a blacksmith, made a lock, consisting of eleven pieces of iron, steel and brass, all of which, together with a pipe key to it, weighed but one grain of gold; he made also a chain of gold, consisting of forty-three links, whereunto, having fastened the lock and key before mentioned, he put the chain about a flea's neck, which drew them all with ease. This is, perhaps, the earliest specimen of fleas—artificially—industrious on record.—*Scientific American.*

The New York Coach-Maker's Magazine.

JULY 1, 1861.

E. M. STRATTON, Editor.

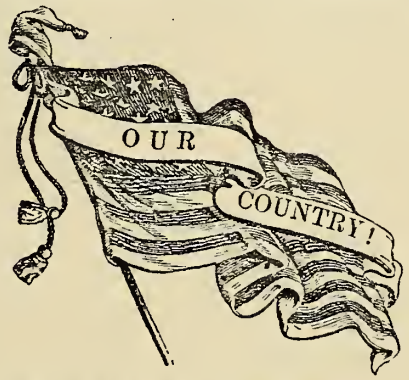
TO READERS AND CORRESPONDENTS.

BOUND VOLUMES *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

COVERS, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

OUR TRAVELING AGENTS.—*Mr. John Hewlett, of Toronto, is the only authorized agent we have in Canada West. Mr. Hiram Mills has the agency of this Magazine for Lewis County, N. Y. Mr. Matthew G. Peck, Jefferson County and some others.*

☞ *All letters directed to this office on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*



"A SHADOW is o'er us, my countrymen, now—
Earth's loveliest daughter is shrouded in gloom;
Dark care sits enthroned on her once placid brow,
And fled from her cheek is joy's roseate bloom.
Yet soon shall her sadness
Be changed to new gladness—
O, swectly she'll smile when no longer o'ercast;
On the night of her sorrow
Shall dawn a bright morrow
Resplendent with beauty unknown to the past!"

EIGHTY-FIVE years have annually brought with them *the* day which every true lover of his country has delighted to honor, but none have ever been attended with so many sorrowful reflections, mingled with hopes for the future, as *the* one now about to return. These sorrowful reflections are not engendered by the thought, that there will be less "villainous saltpetre" burned or fewer patriotic speeches delivered, or weaker demonstrations made in honor of the national birthday; nor that the sacred Temple of Liberty, which our immortal sires erected with so much labor and consecrated with their own blood, will now be leveled with the ground, by a foreign hand; not these—but because a portion of our own countrymen, led on by a spirit of unholy ambition, have in a frenzied hour laid sacrilegious hands upon *that* temple and trailed in the dust *that* flag, which has been the pride and cherished love of every pure American heart.

A few weeks since we greatly feared that patriotism was at a low ebb, and that the American people had no effective government, nor national pride left sufficient to redeem them from the degraded position in which wicked and selfish politicians had brought them. But since the memorable day when our flag was insulted in Charleston harbor, as one man the northern divisions of this Union have arisen in their strength, and, fired with the spirit of seventy-six possessed by our fathers at Concord, Lexington and Bunker Hill, gone forth to vindicate our national honor; and woe be to the traitor who shall offer resistance to their onward march. Even before these lines shall be placed before the reader's eye, it may be seen, that,

"No refuge *can* save the hireling and slave
From the terror of flight or the gloom of the grave."

Our abandoned workshops and deserted streets evince that something singularly strange has come over the minds of our citizens, and that for "a nation of shopkeepers," as our enemies derisively term us in the free States, this is remarkable. We doubt if a parallel circumstance in the world's history can be found to match that of this Union, when, to a man, all are patriots, and anxious to show themselves devoted to the country's welfare. Thousands of our fellow-craftsmen in all departments of the trade have left good jobs, seized their muskets, and at nominal wages run to meet the enemy, exhibiting a martial ardor which almost consumes to the core. Accumulations of wealth gathered in times of peace, collections of the choicest productions of American and foreign art, and everything that tends to enhance the pleasures of life, have all been freely offered on the altar of Liberty. Surely in such an union strength will be found adequate to the exigencies of the hour. It really seems as though the people were totally indifferent to the future—whether they shall come back to their homes to the music of a quick-step, or to the measures of the dead-march, deposited in a hearse. Other national anniversaries have passed away with appropriate commemorations, but the one near at hand—or we mistake the people—will be honored with warmer patriotic speeches, louder explosions of gunpowder, more animated vivas, and a larger display of the "red, white, and blue" found in the Star-Spangled Banner, than this generation ever witnessed before.

Lulled into fancied security by long-continued peace, we had quite forgotten the costs *our* liberties entailed upon our ancestors; but now, when they are in danger, their defence has absorbed all attention. The conse-

quences are, our carriage-shops are nearly all closed—bosses and proprietors being found in the ranks of our armies, side by-side, fighting for the preservation of our Union, saying, in the spirit of Jackson, "the Union must and shall be preserved." We doubt if there be a more patriotic people, as a class, than coach-makers, in the land. There is not a shop of any pretensions to respectability from which the "stars and stripes" are not floating at the present time. Long may they be kissed by the breeze—a warning to traitors and tyrants throughout the world!

Where our present troubles will end, it is impossible to predict; but we think a peace will very soon be conquered, and there is much satisfaction in the contemplation that when war has ended we shall be better friends North and South than before, and that our future progress will be still greater than ever—this land the home of freedom for the oppressed of all climes. We expect yet to see our noble craftsmen happy and prosperous, in the peaceful pursuit of their calling, with plenty of work and well-filled purses, and *everybody enjoying his Coach-maker's Magazine.*

THE HORRORS OF WAR.

Nations rejoice in the triumphs of their armies on the field of battle, but how little is the individual misery involved in the attainment of these victories taken into consideration. There is nothing undertaken in which the means are more wholly forgotten in the end — in which man is more entirely led by his animal feelings. He rushes forth to the contest heedless of the trials, the anguish, the wounds, the blood contingent to warfare, too often in the mere love of novelty and romance, leaving wretched families in want and tears. Let us hope that a holier impulse pervades the breasts of our brethren who at the present time are engaged in fighting the battles of this republic.

When will the world learn the song angels taught us, "Peace on earth, good will to men?" When will swords be beaten into plough-shares and spears to pruning-hooks? Not while ambition stalks abroad over the earth in demon form, crushing the grass and grain, and destroying bud and blossom. Not while the fierce yell of havoc rings out upon the air, and "the fetlocks of his horses drip with blood and brains," hoof-pressed from the dying and the dead. Not while man can be found more willing "to reign in hell than to serve in heaven," even when he knows *his* throne will be formed of human bones and cemented with blood and tears! Is it not melancholy to reflect that, to satisfy the unholy ambition of a few, thousands must die?

How many homes in our beloved country, North and South, must, before our difficulties will be settled, be shrouded in mourning, on account of the deaths of loved ones and friends? Already we imagine we see the half-gorged vulture enjoying his bloody feast, and seeking living eyes as they look their last to heaven; widows bending their comfortless frames over a fireless hearth, listening for the sounds of footsteps which will never pass their thresholds more; orphans calling for their slaughtered sires in vain; lovers with hopes buried in the grave of despair, for

> "Already the earth waxeth old in its sin,
> And the fires of destruction burn hotly within;"

and we fear there is no earthly power can cool these fires. Let us hope that wiser counsels will take possession of the heads of our fellow-citizens, and that the horrors of a civil war—the worst kind of war—may yet be spared us.

GET A TRADE—A WORD TO THE APPRENTICE.

Doctor Franklin, whose practical good sense remains unquestioned, tells us, "He that hath a trade hath an estate, and he that hath a calling hath an office of profit and honor." But it has become somewhat common among parents and guardians to think that if they should place their wards in a position to learn a trade, they are, by so doing, degrading them for life. They somehow seem to entertain the idea that the mechanic is classed among some lower castes than the merchant, the physician, or lawyer—that these last are a higher order of flesh and blood—and consequently, while in this false position, the boy is kept at school to fit him for some *honorable* "calling," until, perchance, he is finally obliged to fill *the calling* of a common day laborer to obtain a livelihood. It is this *spurious* education that consigns thousands of men to a beggarly life and a potter's-field grave. Our country is full of such examples.

Franklin was right; a trade is an estate, bringing "profit and honor" to such as earnestly engage therein, even though it be coach-making—a business we have heard many say "is the meanest of all trades." To this condemnation we demur, for we believe there is no business more "honorable" than ours, nor many more remunerative to prudent and judicious managers. There are many who will never succeed in any business, and, unfortunately, there are too many of this stamp among us. Something may be charged to lack of constitutional business capacity, but, in nine cases out of ten, should men not prosper, it is because of an *individual* faultiness of their own.

While we advocate the getting of a trade, there is one circumstance we would like to have borne in mind—that the period *when* in life this should be undertaken must not be too long put off. Under the influence of regret at leaving home in the boy, and the desire of parents to get all they can out of his labor in pay for his rearing before he leaves them, the boy is frequently seventeen years

of age before he applies for a situation. This is a bad policy. It will not only be committing a wrong against the boy, but imposing upon the good nature of a boss. The boy cannot get his trade perfectly in four years—we confine our remarks to coach-making—nor will the employer reap any advantage for his labor in teaching the boy. It is a well-known fact that three years brings no profit to the boss, and it is a question with some if it be profitable to take apprentices at all. In view of these things, application should be made as early as the age of sixteen, if not earlier.

To the apprentice we would say: when you have chosen your future occupation, remember that it is to be a life-long employment, and that, in order to make *that* employment pecuniarily successful, requires that you *make yourself* master of your trade—a perfect workman. Do not allow any discouragements to hinder your progress, but press forward in the trust that labor and perseverance will overcome every obstacle. Do not, like the idle school-boy, who yet has a wish to keep up with his comrades in arithmetic, and therefore stealthily copies their worked-out problems, not knowing anything of the reason why or how the figures are set down, ape-like follow the patterns and plans of a shopmate, without fully understanding the rules of geometry as applicable to the job in hand, in all its details. If you do not early train the mind to these particulars, you will never rise above the disadvantages encountered by the cut-and-try workmen, too numerous already. Don't do your work too hastily at first, for the purpose of being called "a fast workman," but, by diligence and careful study, lay the foundation deep for a thorough perfection in the art at a future day. Fix this in your mind, *to do the best you can* under all circumstances; you will by so acting benefit yourself and please your master. Instead of leaving it to others, watch yourself, that your conduct may be consistent with the above injunction, *to do the best you can.*

We have observed that the ambition of some apprentices extends no further than the desire to have their allotted time pass as soon away as possible, so that they may be *their own masters.* This wish binds them *to themselves* as slaves, during their apprenticeship, most effectively. No slave in any part of the world suffers so much as these. If you would have a pleasant minority, put forth higher aims than these of *running* through your apprenticeship at a 2.40 gait, by performing your rounds of duty uncomplainingly, without once thinking of becoming prematurely independent. Fix in your own minds the course of duty you deem to be right, and then pursue it to the end patiently, steadily, and faithfully. Determined to become a master of your trade, let every day of your apprenticeship show that you have learned something new; that you have conquered some difficulties. As a help to this object we would modestly (!) suggest that you take this Magazine, not in the vain expectation that we shall tell you everything, but with the assurance that our talented correspondents will enlighten you on many subjects, and thus make your studies comparatively easy. Relaxation from work will become necessary, but that time may be employed in perfecting the structure, which, as a mechanic, you have determined to erect for yourself. The result will be, that superior intelligence will be manifest in your workmanship when compared with others' labors; a higher rate of wages will be secured; and, what is of equal worth, you will have a commendable pride in knowing yourself to be *a finished mechanic.*

THREE DAYS ABROAD.

AFTER six months' confinement to our office, being surfeited with war news and cries of dull times, we ventured abroad, on a visit to the craft, along the banks of the Hudson River. Taking the cars at the Thirtieth-street station, at 9.50, one hour and a quarter were spent in reaching Yonkers, distant from the station only 17 miles. This will be accounted for by the fact, that no less than a dozen stoppages were made in the passage. It is well known that the Hudson River R. R. extends along the shore, in a circuitous direction, its entire length to Albany, presenting many opportunities for picturesque views of some of the grandest scenery ever found anywhere. Upwards of 12 miles the traveler is carried along the shore of Manhattan Island to Spuyten Duyvil Creek, that, in connection with the Harlem River, separates the City of New York from Westchester County. The reflective mind will be satisfied that Manhattan Island, from its favorable position at the confluence of two estuaries of the sea, and its breadth of area, gives evidence that, eventually, New York must become one of the largest cities of the world—probably *the* largest. The entire Island already falls within the corporate limits of the metropolis, and is everywhere mapped out with a net-work of streets and avenues, although the upper portion is still, comparatively, a rural region, of streets and avenues on paper, merely. The finest portion of this *rus in urbe* is the crown of the narrow stretch of highlands bordering upon the Hudson, and famous as the site of fortifications, and as the scene of battles and sieges in our Revolutionary history. To the railway passenger the beauties of these places are but slightly seen, in the glimpses caught from the cars as he passes onward, revealing inadequately its woods and terraced lawns, villa porches, cupolas, and towers quietly nestling amidst the greenest verdure of springtime; these, to be comprehended, must be explored in their hidden recesses. This elevated portion of Manhattan Island is threaded by the Kingsbridge or Bloomingdale road, which, in spite of its rural surroundings, is, in point of fact, none other than

Broadway itself. In its extent from the battery at the south, to its northern end at Spuyten Duyvel Creek, it skirts, for two pleasant miles, the western boundary of the new Central Park, affording one of the most pleasant and picturesque drives for pleasure carriages to be found in the world. On any fine day the visitor will be paid for his trouble with one of the finest panoramas of "Life on the Road" imaginable. Spyt den Duival, as written by the old Knickerbockers, has, in addition to its Revolutionary reminiscences, been immortalized by Irving in his Sketch Book, and need not be particularly noticed here.

At Yonkers we visited, among others, our friend Wm. H. Anderson, Esq., the most successful carriage-maker in the village. Although not a very extensive manufacturer, yet he has already introduced into his factory a steam engine, which enables him to saw out his "stuff," tenon his spokes, or do any of the drudgery entailed upon his neighbors in manufacturing carriages, with facility and dispatch. Here we found, quartered in a large building, the Mozart Regiment of soldiers, 900 strong, intended as a small portion of our army now engaged in defending our national flag. The men consume daily two large beeves, and bread in large quantities, furnished them by contract, at 40 cents per day each man, from the United States Government. The Palisades on the opposite banks of the river, at this point, are very picturesque, but at the time of our visit were completely obscured by a thick fog. But the steam whistle admonishes us that an opportunity is now offered for reaching Tarrytown. Here we find three carriage-shops, but are now, in consequence of the war, doing very little. Here the river is much wider than below, at Yonkers, and is known in our early Dutch history as the "Tappan Zee."

Interesting in its physical aspect as the neighborhood of Tarrytown unquestionably is, it is still more so in its historical and poetical story. Here lie the scenes of one of the most affecting episodes in our Revolutionary annals —the capture and fate of the talented and gallant Andre. In the center of the village a lofty obelisk now marks the very spot where fortune consigned him to the cruel fate of a captured spy; and on the opposite bank of the river is seen the little apartment where, in confinement, he passed his last hours in weariness, and hard by may be found a sculptured stone, marking the spot where he was executed, in October, 1780. Who can read his history without shedding a tear to his memory? In contrast with Andre's fate, let us turn to a sweeter theme—the quiet shades of Irving's "Sleepy Hollow," near by. Here lived (in imagination) the celebrated Ichabod Crane, or rather *tarried*, as he termed it, while teaching "the young idea how to shoot," and while feeding his mind upon "sugared suppositions" he talked "soft nonsense" in the ears of Katrina Van Tassel, the buxom daughter of Heer Van Tassel, in rivalry with the scarcely less notable Brom Van Brunt. But we must not tarry to tell all Ichabod's love adventures.

From Tarrytown we visited Sing Sing, famous for its State prison, and Peekskill, another pretty village, where we found numerous fellow-craftsmen, until, finally, we reached Newburgh, and called at the shop of our esteemed friend Mr. L. J. Bazzoni, whose reputation for good work has gained for him a large custom. Two years ago we were in the place, when he occupied a small shop, but now we find him in a new brick shop, with ample room and accommodations to satisfy the wants of a large number of customers. He is among the very few whose business seems as yet little affected by the hardness of the times, having an extensive home patronage on which he may depend.

At the southern extremity of this village is situated the celebrated house occupied as the headquarters of General Washington, which, as stated on a sun-dial in the yard, is situated in latitude 41° 36′ north. Here are, preserved with great care, the relics of the times that tried the souls of our ancestors. We spent two hours in their examination, and found that since our last visit, in 1845, many new articles of interest had been deposited there for safe-keeping. We can find space to name but a few of the articles: A mammoth boot of a Hessian officer, with corresponding-sized spur and other "fixins;" an antique shoe and overshoe, 150 years old; a fine specimen of the continental hat, worn by Robert Waugh from 1760 to 1816; a coarse *linen* knapsack worn by Capt. David Uhl, at Harlem, N. Y., in 1776, at the Revolutionary period; several specimens of leathern and corduroy breeches, a century in age; a battle-ax captured from the English on Lake Erie; an English cavalry sword, and other articles, taken at the battle of Lundy's Lane; numerous pistols and muskets, taken from the Hessians at the battle of Trenton, in New Jersey; the wooden canteen of Abram Van Vlack, worn at the evacuation of Fort Constitution, in 1777; Indian arrow-heads and hide-dressers of stone; Hessian camp kettles, and copies of several newspapers of Revolutionary times.

In the N. W. portion of the edifice we found all kinds of documents relating to public affairs, such as orders, resignations, and discharges, in their originals; one from "Mad Anthony Wayne," in a beautiful, bold hand, which, as it is supposed, relates to the preparation for an attack upon Stony Point, passed in our journey, we have transcribed. It is No. 33 of the Sackett Papers.

Fish Kill Landing, 4th Aug, 1779.

Dear Sir: You'l Please to order a Detachment of One Hundred and Fifty men, with two days' provisions, under the command of Col. Butler—on a particular duty —I wish you to order Major Hull with him. Interim believe me yours, Anthony Wayne, B. G.

N. B.—The Detachment.

Here can be found "continental money," which "'tis death to counterfeit," and which, afterwards, it was *death* to possess, from one penny up to several pounds; and a sheet of stamped parchment in fine preservation, the duties on which was 2s. 6d. sterling, and to resist which was one of the causes of the Revolutionary War. Here are also carefully preserved a lock of Gen. Washington's hair (gray), and of Gen. Lafayette's, cut in 1824, on his visit to our shores. In a detached building may be seen a portion of the chevaux de frise used at West Point for intercepting the enemy's passage up the river, during the War of the Revolution, and found at the bottom of said river a few years since. In the yard in front is mounted an enormous cannon, brought over by Burgoyne, and used in Fort Ticonderoga, *graced* with the figure of the English crown and Royal initials. In the same grounds has recently been erected a fine monument to Uzal Knapp, the last survivor of Washington's Life Guards in the battles of Monmouth, Valley Forge, and Yorktown. Born 1759, died in 1856. Among the names which burthen a voluminous album, may be found, subscribed within the past year, that of the celebrated rebel leader, Jeff. Davis, who in person visited the place. Let us hope that many Southern trophies will add interest to *his* next visit.

Poughkeepsie, still further up, is another fine city, possessing several carriage-shops, only one of which, "The Dutchess Co. Carriage Factory," we were told, had "had a plenty of business all this spring." After visiting Kingston and Hudson, both very fine places, but the last a miserable one for carriage-makers, although there are three or four shops scattered about, we took the fine steamer Oregon, in the evening, for New York, where we found ourselves in the morning, after a good night's rest on the passage, safe and well. We would embrace this opportunity to thank the kind friends who so warmly extended the hand of friendship to us on this occasion, and trust that when next we visit them it will be under improved circumstances, under the benign influence of a conquered peace.

EDITORIAL CHIPS AND SHAVINGS.

LABOR MADE EASY.—A correspondent traveling in Canada says he passed a field in which two men were riding in an elegant spring wagon, drawn by a span of horses, one acting as driver while the other was sowing grain. This is rather a novel blending of farm labor with pleasure-taking.

SLIP-SHOD MECHANICAL LITERATURE.—An English writer who essays to instruct the craft in England says that "the horse-litter was simply a hammock nailed on to a frame, which was mounted on four wheels." *A horse-litter mounted on four wheels!* What next, Mr. Editor?

UBIQUITOUS FIFTH-WHEEL.—The correspondent of a New York paper, writing from Baltimore, May 21st, says, that when the U. S. New York 2nd Regiment marched through Lombard Street, on their way to Washington, the secession "Marshal Kane's police walked before and behind, like the fifth-wheel to a coach." This is the first instance where a fifth-wheel ever *walked* behind, although these "learned men" have sometimes told us strange stories about them.

LORD MELBOURNE'S COMFORTABLE CARRIAGE.—One chilly day, and being out of sorts, the Prime Minister of England expressed a wish for a more comfortable carriage to take him from his office home. A humorous sub, much of a pet, bolted away into the purlieus of Tothill Fields, and in less than half an hour a message was sent up to the Minister to say that his carriage was waiting. Down came Lord Melbourne, and there, at the door, stood a vehicle, lofty and broad, and the reverse of pyramidal in form, with a yellow body and scarlet wheels, two windows on a side with green blinds, and a street door with a brass knocker, and a flight of steps leading to it behind, a chimney pipe—and the minister could "see by the smoke that so gracefully curled" that there was a fire within. "Who sent this thing here?" cried the minister, half angry, half joking. "Mr. J——," was the reply; "he heard your lordship say you wanted a comfortable carriage, and this is the most comfortable he knows of." "Tell the young vagabond to keep out of my way or I'll punch his head for him," were his last words, as he retreated up stairs again.

ENGLISH PLAGIARISM OF AMERICAN PATENT WHEELS.—A man calling himself Franz Thonet has recently patented, in England, "Improvements in the construction of wooden wheels," which, as we understand, in the absence of drawings, are a combination of Hayden's and Saroen's patents. It is described as having "the inner ends of the spokes beveled in such a manner that when the inner ends of all the spokes contained in the wheel are brought together they form a solid and compact body with a space or circular aperture in the center. I insert in this space or place before the inner ends of the spokes are brought together, and then bring them together round it, a pipe or tube, which I prefer to form slightly tapering on the outer surface. On one end of the tube by preference, formed in a piece with it, there is a circular disc or plate, which, when the tube is in its place, rests against the inner ends of the spokes on one side. I then apply over the tube a disc of similar size to that before named, and with a hole through the center, to enable it to be passed down over the tube, so as to inclose the inner ends of the spokes between the discs. I use screw-bolts, which pass through some of the spokes, and hold the discs firmly together. I prefer to form the outer projecting pin, and to form an aperture in the felloe to receive the pin, and I do this to allow of the ready removal and replacement of any one or more spokes which require to

be removed." This is a specimen of the manner in which John Bull pirates our ingenuity.

Workmen's Courts of Conciliation.—A bill has been introduced into the British Parliament for establishing Councils of Conciliation to settle differences between employers and their workmen. It provides for councils which shall consist of an equal number of employers and the workmen, but the chairman of a council must neither be an employer nor operative mechanic. All trade disputes are to be brought before such councils, who are to decide them; but they are not authorized to establish a rate of wages, or prices which shall be paid for work. In France there are courts called *prud-hommes*, which are similar in their nature to the proposed Councils of Conciliation, but trade unions are not allowed in the empire.

A Yankee Steam Carriage for Constantinople.—At Wood & Craft's, in this city, an overland steam carriage, intended to carry the mails and other light articles across Asiatic deserts, is being constructed to the order of Mr. Ryder, of Courtland Street, who has a contract for the machine from parties in Constantinople. The wheels are of boiler iron, constructed lightly in a peculiar manner. The whole weight of the carriage will be 8,000 pounds, and it will bear several tons of freight. A trial will take place, in two or three weeks, in some of the sandy wastes of New Jersey.

A Queer Fish.—Mr. T. Fish, known from his immense wealth as the "Golden" Fish, of Knowle Cottage, near Sidmouth, England, died recently, aged 77, at his residence, No. 13 Penton-row, Walworth-road, Newington. Although excessively rich, his income, besides house property, being about £20,000 a year, Mr. Fish was scarcely ever seen abroad. He partook most sparingly of the simplest kind of diet, but a good table was provided for his servants, those in his town house consisting of a butler, coachman, and female servants; while, although keeping a carriage and horses, he never used them, but used to hire a vehicle to convey him to or from the railway station. Two of his horses (a pair nearly milk-white) might be seen daily, attached to a very antique curricle, driven by an equally antique-looking coachman, around the streets of Walworth, etc., for exercise. Mr. Fish has died a bachelor, and, it is said, has very few relatives. Among the property are 400 public houses.

Wagons for the War.—The New Hampshire 1st Regiment, which passed through this city on the 26th of May, on its route to Washington, besides its supply of rations for the journey, had a baggage train of seventeen wagons, with four horses to each wagon. These were loaded with provisions, ammunition; engineers', sappers' and miners' tools; tents and camp equipage; and one wholly filled with extra uniforms for the regiment.

The Cab-driver's Plea for the Sabbath.—Considerable interest has been taken in England, recently, regarding the general employment of cabs, hacks, &c., on the Sabbath. A cab-driver thus argues, in a tract published in Glasgow: "I would not be unreasonable in my complaint; but if the Sabbath be my birth-right, why should professedly Christian men so frequently deprive me of the rest of that sacred day by the unnecessary employment of cabs? If God enjoin the cab-driver, as well as others, to keep the Sabbath holy, why should this religious community force me to break his commandment? If ministers of religion refuse me the privileges of the church because I drive on Sabbath, will they not aid in putting a stop to Sabbath driving by showing their people from the pulpit, and out of the word of God, that to use a cab at all on the Sabbath is a sin of no light nature, unless in a case of urgent necessity? Christian people! I appeal to you. When the close of the week comes I long to rest my wearied body and refresh my jaded mind; but the religious public will have a Sabbath cab, and I must go and drive! It is well known that I am very little at home all the week, and I am wishful to have a quiet day to enjoy cheerful converse with my family; but the religious people of Glasgow say they will have Sabbath cabs, and so I must leave my family, and go and drive."

Secession Poetry and Buggies.—A Tennessee carriage-maker with an "eye to business" appeals to his neighbors in the following strain:—

Ho! *Southern* men, who raise your voice,
And loudly shout for *Southern* rights,
Yet send your *money North* from *choice*,
And thereby strengthen *Northern* might.

Hard times ye cry? *No money here!*
And why? the *North* has drained your coffers,
And "Wide-Awakes" o'er lager beer
Rejoice in being your scoffers.

The cure for your complaining tones
Is ready at your open doors:
You've but to *keep your cash at home*
And *Northern buggies buy no more*;

And at your Annual County Fairs
Your premiums offer for the best
Of *your own* manufactured wares—
And judges *practical* should test.

And when a swell you wish to take,
Beside a handsome Southern belle,
Your *buggies* buy of *Clarksville make*—
Bringhurst & Son keep them to sell.

But should we not quite suit your taste,
Your orders leave—they can be met
In time to suit a mod'rate haste,
By those who orders ne'er forget.

Ambulances for the War.—The Union Defence Committee have ordered fifty ambulances for the use of the military. The whole were shipped on Saturday afternoon for Washington, to Major General Sandford. The body of this vehicle is four feet wide and eight feet long, with two shifting seats and two mattresses to fit the body, each

made to hold four. There is also a convenient arrangement for getting disabled soldiers into the vehicle. The body hangs low and is capable of carrying 2000 pounds, and is constructed so that hammocks may be hung inside, thus forming a kind of moving hospital. It is on three springs, thus making it easy for the wounded in riding. It may be drawn by one or two horses.

JUST AS WE SUPPOSED.—A friend writing from Iowa pays the Magazine the following compliment: "Our Western carriage-makers *cannot afford* to do without it when they understand their true interests. * * It is not generally known in this section that there is such a work published. In this village only one copy has been regularly taken by the craft, but the benefit they have received has been more than tenfold the costs of subscription. I had a good opportunity to examine the work made here before they took the N. Y. Coach-maker's Magazine. A few days since I was invited to examine the work of a firm built the year before they took your publication, and I was surprised to see the improvement they had made in style since. If every shop could understand the benefit to be received as well as I do, *they would take it if it cost fifty dollars a year instead of three.*"

LONDON MASTER COACH-BUILDERS' BENEVOLENT INSTITUTION.—The Fifth Annual General Meeting of this Institution was held on the 22d of Jan. last, J. H. Mann, Esq., Sec. *pro tem.* The Report was read to the meeting by our friend, Mr. Geo. N. Hooper, Vice-Chairman of the Committee of Management. From this report we learn that the whole of the candidates for the pensions from this charity are from the provinces, and that the festival given on the 27th of May, 1860, netted £300. The committee expended in temporary relief to its pensioners during the past year £52. They also invested in government securities, in the names of trustees, £400, and have now standing to the credit of the Institution £3,900.

EDITING MADE EASY.—An expensive work, devoted to "the craft" in England, for March, "cribs" no less than five articles from this Magazine without even intimating the sources from which they were taken. We were half persuaded to pay the pilferer off "in his own coin," but, on examining the number, we could find nothing there of sufficient interest to the trade to pay us for the trouble of taking it.

OBITUARY.—We stop the press to announce that our cotemporary in London, who has so long been troubled with *the spasms*, has finally gasped his last—died. In the absence of other proof, it is fair to presume that that "brassy" dose administered by one of the members of the Broadway firm was too much for a *weak* stomach and a *bilious* temperament to bear up under. *Requiescat in pace.*

INVENTIONS APPERTAINING TO COACH-MAKING, AT HOME AND ABROAD.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS.

*** TO INVENTORS.—Persons who have made improvements in, or hold the right to dispose of, inventions relating to carriages, will find this Magazine the best medium through which to advertise their patents. It is taken by, and has a very large circulation among, coach-makers in every State of this Union and the Canadas, and a respectable circulation in England. The terms, which are very liberal, will be made known by letter, to correspondents, when directed to the Editor.

April 9. IMPROVED MACHINE FOR MAKING BRACES FOR CARRIAGE TOPS.—B. F. Hooper, of Birmingham, Conn.: I claim the clamping dies in combination with the swaging or shaping dies working in succession, substantially as described for the purpose set forth.

April 16. IMPROVED WHEELWRIGHT'S MACHINE.—Curtis Luther, of Newbury, O.: I claim the special arrangement and combination of the several parts in the manner set forth, so that the various kinds of work in making carriage wheels, as boring the hub, tenoning the outer ends of the spokes after they are set, and boring the felloes, may all be performed upon the same machine, placed upon a common work-bench, and operated by hand as specified.

IMPROVEMENT IN WAGON LOCKS.—Thomas Service, of Utica Pa.: I claim the stop-bar, W, in combination with the sliding reach, D, both constructed as described, and operating together for the purposes set forth.

April 23. IMPROVEMENT IN THE TAIL-BOARDS OF WAGONS.—J. O. Farrell (assignor to himself and W. S. Hills and J. H. Hills), of Boston, Mass.: I claim the notched sector bars, C C, vertical spring bolts, D D, arms, *i i*, and shaft, G, arranged and combined with hinged tail-board, B, and operating as a self lock, as set forth.

May 7. IMPROVED METHOD OF MAKING THE SKEINS OF AXLE ARMS FOR CARRIAGES.—Gottlcib Schreyer, of Columbus, O.: I claim as a new article of manufacture an axle skein with its under wearing surface, *a a a*, and its smallest end, *c d d*, made of a uniform thickness, as shown in figures 5, 6, and 7, and its upper surface, *f f*, of a gradually decreasing thickness, as represented in figure 8, by forging or rolling a plate of metal, A, in the manner and for the purpose described.

May 14. IMPROVEMENT IN WHEEL CARRIAGES.—D. F. Goodhue and E. H. Cary, of Cincinnati, O.: We claim the combination herein described of the spokeless rings, G, grooved supporting wheel, B, axle, C, grooved guide rollers, H H′ H″, and springs, F, the whole being constructed, arranged, and operating in the manner and for the purpose set forth.

RECENT EUROPEAN PATENTED INVENTIONS.

Jan. 3. Charles Stevens, Welbeck street, Cavendish square, London—An improved apparatus for stopping run-away horses attached to carriages, &c.

Jan. 4. James Crocker, Liverpool, Lancashire—Improved apparatus for indicating the number of persons, vehicles, or articles passing or being made to pass any place or part of a machine, especially applicable to omnibuses.

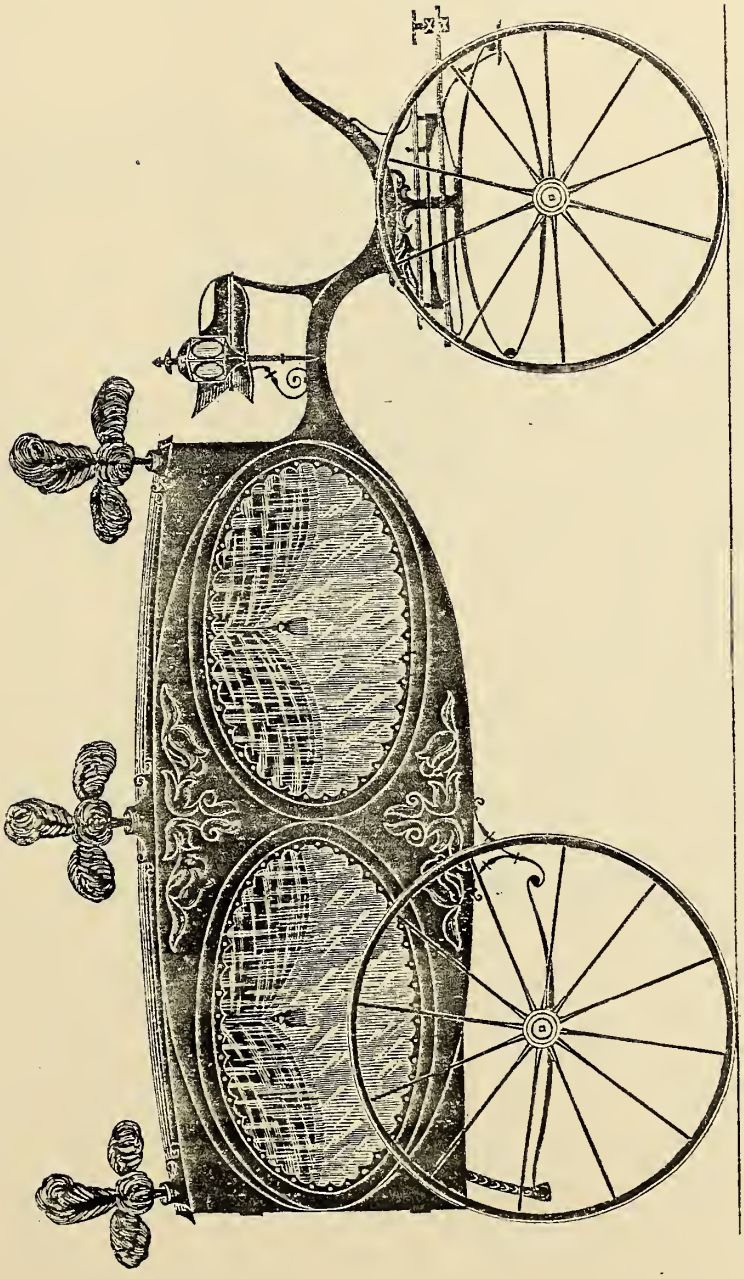
Andrew Fairbairn, Leeds, Yorkshire—An improved construction of forging press or hammer for iron workers.

Jan. 10. Stephen Moulton, Bradford, Wilts.—Improvements in the manufacture of India rubber, applicable to springs, valves for machinery, and other purposes.

Jan. 15. Alfred V. Newton, Chancery Lane, London—Improvements in the construction of railway and other carriages.

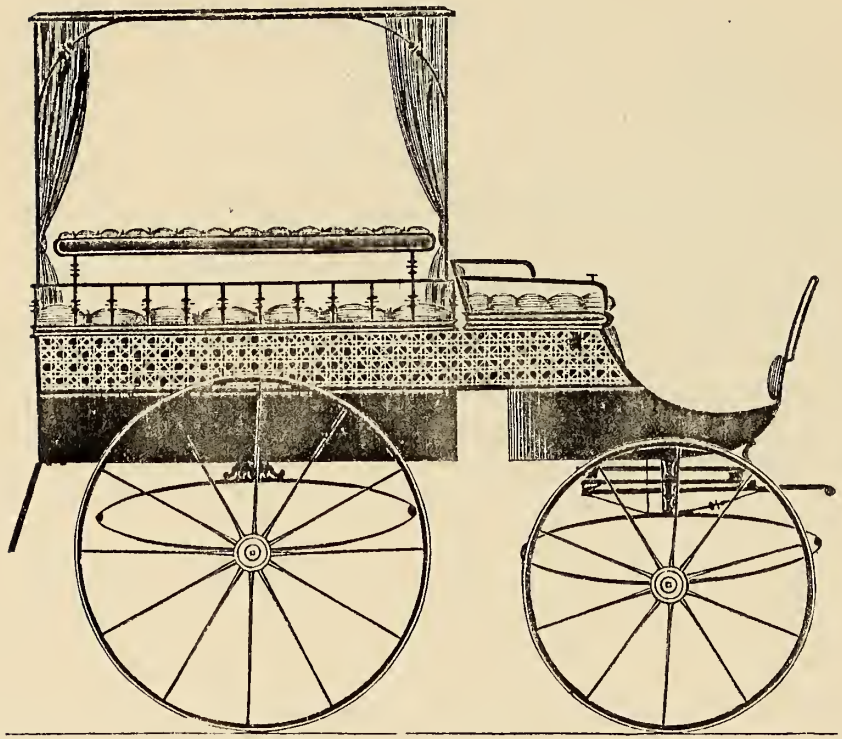
Lucius A. Bigelow, High Holborn, London—Improvements in the construction of certain kinds of passenger carriages. [Previously patented in the U. S.]

16. William Coulter, Everton Road, Chorlton-upon-Medlock, Manchester—An invention for the use of joiners, carriage-makers, and others, called a "bench-hook."



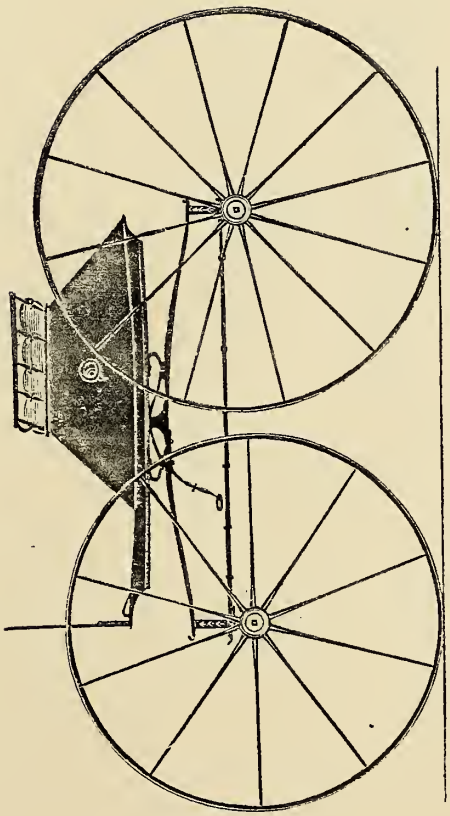
THE NICHOLS'-FARMS HEARSE.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 48.



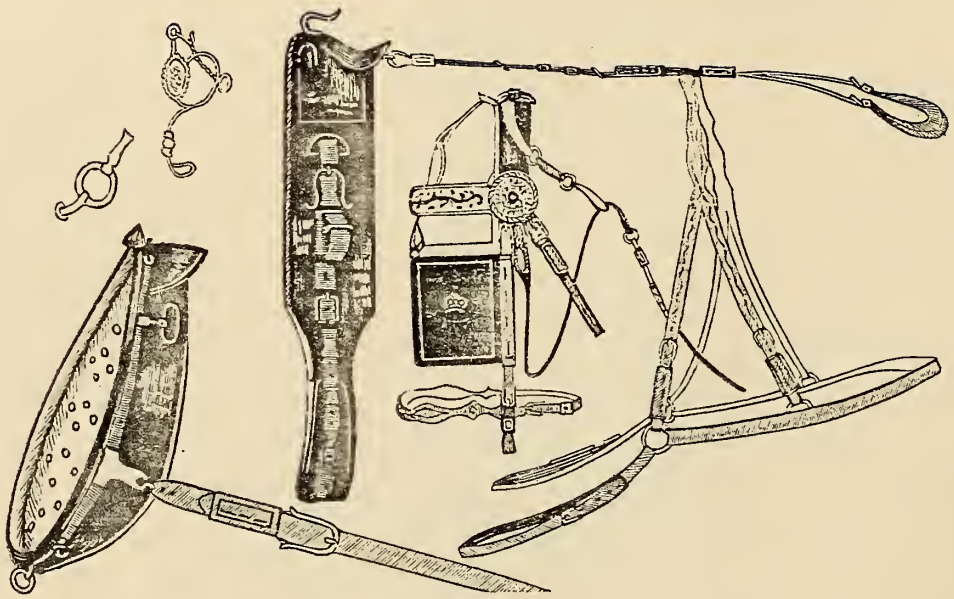
PARISIAN WAGONETTE.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 48.



NEW YORK BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 48.



HARNESS FOR A CABRIOLET.

Explained on page 52.

New York Coach-maker's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, AUGUST, 1861. No. 3.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

I PROPOSE to give to those identical with me in profession—members of the craft—a brief history of my experience, and what I saw, as a transient, amateur "jour.," in the boundless amphitheater of the "Great West." It is hoped there will not be too much expected from so humble a source—from a pen not experienced in the belles-lettres of the present age, which attract the profound attention of the literary world, and sways the million at the option of the author; but that it may receive such consideration as it duly merits. Mine is an experience and nothing more; not an elaborately compiled history of the rise, progress, and fall of defunct republics; not a brilliant biography whose pages shine with the immortal deeds of great men, who have risen by patience and perseverance to an eminence of position, who have obtained place and power by their own individual efforts, and whose mortal remains now slumber under costly monuments; but simply the experience of a traveling carriage-maker, who operated, under the circumstances peculiar to such a situation in life, as others would; who saw what thousands have seen, if not written; who has enjoyed the good and beautiful, and abhorred the opposite, and done whatever in his judgment would produce the greatest amount of comfort to himself and others.

While I proceed to relate facts, as they actually occurred—seated as I am in the refreshing shadow of the graceful spreading branches of an ancient oak, by the side of a bright, pure rivulet, that ripples over a variegated bed of pebbles, richly set in stones of gold and pearl—I cannot refrain from the thought that you are by my side, and that you behold the vast arena of natural grandeur presented on every hand—the distant hill-tops, the fertile valleys, the green forests, the silvery stream that steals noiselessly close by our feet, and winds its way down until lost in the distance; and that you inhale the fragrant atmosphere as it wafts by laden with sweet odors gathered from distant floral-gardens; in a word, that you enjoy with myself the rare comforts of this rural seclusion. I love to enjoy the rural felicity derived from the contemplation of such a scene. It makes one feel youthful as ever, and inspires him with new spirit. But pardon my digression; I would not wish to weary your patience, or consume time and space unnecessarily, but would give you my experience.

I stood on the threshold of the old homestead, situated east of the Alleghanies, in the beautiful village of W——, on the eve of taking leave of my friends and associates, previous to exchanging those dear old scenes for others, perhaps not so congenial to my young ideas, but among which I expected to carve out a position of fame and fortune, and to secure an elevated place in the social circles of life. I was young, strong, and ambitious, with a strong feeling of abhorrence to everything that pertained to the extravagance and luxury of high-life, and a kindred feeling for all of humble place in the fields of industry; a position similar to that of my own, from which I expected to rise by virtue of my strong arm and undaunted will.

I looked about me with a feeling of sadness that pervaded my very soul, and caused a sensation of regret to cross my mind, such as all experience when first setting out on a journey. Notwithstanding these, and the perplexed state of my mind, it produced no effect on the resolution I had taken to proceed to the West. I had determined to set out to do for myself, and that determination was not to be thwarted by the intervention of any trivial circumstance.

I cannot say that my mind had been relieved to any considerable extent by my rapid transition over the "doubtful rail;" but I must confess that I felt greatly relieved and encouraged when I found myself within the incorporated limits of the great "Iron City." This city is renowned for its unexcelled habits of industry, and not erroneously either; it is truly a thorough-going and enterprising place, and deserves all the encomiums that may be claimed for it. But I soon discovered that it was not the peculiar city I sought—that I could not there realize the golden vision which would correspond with the standard I had set up; consequently I soon concluded to take my leave of the place where iron predominated, and wood is a secondary article. The sun on the follow-

ing morning shed his first rays upon the beautiful steamer that I had taken passage on as she sped gracefully and swiftly down the silvery current of the Ohio. The lover of natural grandeur and picturesque scenery cannot possibly find a greater degree of sublimity, or a richer feast for the ocular organs, on this continent, than in a steamboat trip on the waters of this beautiful Western river. The voyager is constantly enraptured by the grandeur exhibited on either side of the river; the elevated hill-tops, the sun-hid gorges, the overhanging crags, the vast, somber forest, stretching far away in the distance, all blend together to heighten the panoramic landscape constantly drawn before the ecstasied vision. Hamlet after hamlet is presented to the view, nestling under the verdure-crowned hills and on sloping uplands, producing indubitable evidence of the industry, taste, and enterprise of the inhabitants.

In proof of the unexcelled quality of the soil, and the superior agricultural resources of those bottoms, the eye wanders over vast cultivated fields, on the alluvial bosoms of which is borne a wealth of golden grain and green meadows, not excelled, perhaps, within the boundless region of the great Northwest. The observer is lost in astonishment when he undertakes to estimate the wealth and power of the rich and fertile valley of the Ohio. Unexcelled in its production, rich in its manufactures, powerful in its genius, liberal in its education, and salutary in its influence, it may be termed the garden-spot of the continent. I might have enjoyed the trip if my mind had been in a better state to appreciate those pleasures which were liberally presented on every hand, in the fine scenery on shore and the ample provision for the personal accommodation of passengers on board the boat,—I might have better enjoyed the magnificent and sublime workings of nature in the creation and perpetuation of those beautiful landscapes.

But then I was young, and fast leaving—perhaps forever—the old home of my childhood, where I had found parental affection and fraternal love, and where no event had ever transpired or circumstance intervened to mar my youthful enjoyment nor cool my burning imaginations of a golden fortune in the future; but then I was rapidly passing further and further from my acquaintances, from everything near and dear to me, to lead a transitory life among strangers, and to share the cold hospitalities of a merciless world.

I was admonished of our near approach to a landing by the shrill noise of the steam-whistle, which aroused me rather unceremoniously from the half-pleasing, half-disgusting revery which had monopolized my entire senses, and banished every thought of things external and present from my mind, assuming the prerogative to worry me, between delight and despair, by a rapid transition, back and forth, from the past to the future. I soon found myself upon the deck, in a favorable position to appropriate anything under the head of sight-seeing to the benefit of my own visional gratification. Before me reposed one of the cities of the "Old Dominion," made famous long since by the chivalry of the citizens of that grand old State—the birthplace of the immortal Washington, the *pater patriæ*, "first in war, first in peace, first in the hearts of his country men." The ladies of all parts of the country have taken the pains, as all are aware, to fit up, rebuild, and ornament the former residence and sacred burial-place of that great and good man, and to complete the magnificent monument, calculated to impress the American mind through all time to come with the memory of the illustrious dead—Washington.

Being rather pleased with the place than otherwise, I concluded to stop for a day or two and try my hand at getting a job. There being several carriage-factories in the city, I proceeded without delay to visit them. A man of more experience might have succeeded better; but I had made but few applications of the kind in my life. As I proceeded to make my wants known in the best manner I could command, I gradually elapsed into the belief that I would have to leave, as I did from Pittsburgh, without success. But, finally, to my gratification, when I had almost accomplished the entire circuit of shops in search of work, my efforts were crowned with success, and I proceeded to make my arrangements "to set-in."

The prices were not such as I could have wished; not corresponding with the standard which I had set up in my own mind in reference to the "shining metal that cankers in iron coffers," waiting to be distributed to enterprising and industrious hands. But nothing daunted at this, I determined to comply, thinking that work was better calculated to promote my physical condition at that particular time than travel. Without taking time to consider, I immediately set about arranging things in the locality assigned to me in proper order for a good day's work on the morrow.

My feelings were a great deal lighter and more buoyant that evening, as I proceeded leisurely toward my boarding-house, situated a short distance from the shop, on one of the principal, though not business, streets of the city. I had chosen this locality from the fact that it better harmonized with my feelings—solitude being more agreeable to my tastes than society—as it gave me a better opportunity for mental reflection than I could find amid the noise and bustle of a more public place.

I must confess that I felt a sensation of pride steal upon me when I reflected that I had unshackled the chains that had previously bound me, and that I was now my own man, free to roam whither I chose, untrammeled and without restraint; free to stay as long as consistent with my inclination, and to go when and where I desired.

With a feeling of curiosity I wandered about the city, gazing on the various scenes as they were presented to view, and finding in them undeniable evidence of architectural skill, as comprised in the massive blocks of buildings, towering over wide streets, giving an appearance of taste and grandeur only found in Western cities. Edifice after edifice reared their stately heads, relieved by lofty, glittering domes, elaborate turrets and finely-wrought cornice, which has undoubtedly been reached by the plastic hand of modern skill alone, bearing witness of the marked ability of modern architects in these regions.

After exhausting my desire of observation, and becoming fatigued with walking, I betook myself to my new home, where my accommodating hostess had supper prepared, of which I partook sparingly, and repaired to the apartment allotted to my individual benefit. After all had been hushed in the silence of night, I lighted a fresh cigar, as was my custom, and, reclining comfortably upon the sofa with which the room was provided, I gave myself up to a sweet, dreamy reverie. I thought of my old home with its past blessings, of my associates of gone-by days, of all the important events of

my childhood, of the future with its prospective blessings, and the prosperity that most assuredly awaited me in some event that was to transpire at some future period in my career. I breathed the air freer, felt more independent, and slept sounder than I had for many months.

The pleasant month of May, with its fragrant breath, floral robes, and warbling songsters, had gone; and the sultry days of June and July had driven those songsters to the deeper shades of the forest; and summer had spread its golden tint over the vast harvest-fields, which were beautifully distributed over the surrounding bottoms. Notwithstanding that the time had passed off as pleasantly as I could have desired, I began to feel dissatisfied with my situation, and to look around for a change.

I was informed, through a letter which was handed me by one of my shop-mates, of a thriving establishment situated further down the river, in a flourishing young town, where workmen in carriages were in demand, and wages were tolerably good. By three o'clock I had my baggage shipped on board of a small steamer, which wore ship and stood off majestically down the channel. There were fifty passengers on the boat, all, from appearance, being wealthy families from the North and South. The difference of latitude was distinguishable by the difference in manners and costume—some returning from Northern tours to Southern homes; others just setting out from Northern homes on Southern tours. As the sun sank in the west, dense, dark clouds gathered in the horizon, piling higher and higher, and growing more ominous every instant; with their threatening appearance spreading gloom and terror in every mind, and causing many to tremble with fear. Night coming on, clothed the scene in pitchy darkness, shutting out the entire shoreward view, at the same time admonishing those who had not already retired of the necessity of repairing to their state-rooms, to escape the confusion which prevailed outside. The rain poured in torrents upon the deck, and the wind increased in fury at every moment, so that the captain deemed it advisable for the safety of the boat to lay up until the fury of the storm should abate. I had taken to my bunk, and invoked the god of sleep, who finally came to my relief. I awoke not again until the stroke of the engines admonished me that the boat was under way. Throwing open the side-light I peered out to ascertain the state of the weather, but soon discovered that, though the wind had subsided and the rain ceased to fall, it was not light, but that the entire scene was wrapt in more than "Egyptian darkness." I closed my eyes again and endeavored to sleep, but that pleasure was slow in coming to my relief; however, as the engines assumed their regular vibrations, I glided stealthily into the land of dreams, soothed by the monotonous hum of the machinery as it propelled us on our way. Just as fear had passed off, and some slept in the ecstasy of their joy, and others, more wakeful, offered thanks to Divine Providence for their safety, and all things had became apparently composed, the steamer lurched and struggled under a sudden concussion, the force of which threw many upon the cabin floor. Dressing myself hurriedly, I rushed upon deck, where I discovered the true state of affairs; the boat had struck a huge snag which had probed the hull in such a manner as to defy repair. A tumult of wild frenzy now prevailed; with the crashing of timber came the screams of women, the cry of children, and the hoarse, firm command of the captain—all mingled together in a wild chaos of discordant sounds. The dreadful truth had seized upon every heart—the boat was sinking!

(*To be continued.*)

For the New York Coach-maker's Magazine.

IS THE SO-CALLED FRENCH RULE IMPERFECT?

MR. A. DUXBURY'S REPLY TO MR. R. LURKINS.

Mr. Editor, will you allow this communication a place in your valuable (to our craft) Magazine, that I may defend—in the event that your Magazine is not furnished with an article on the same subject by some more able correspondent—a rule or method called by some body-makers the French Rule,—the correctness of its practical working being disputed in your publication by a Western correspondent, Mr. Lurkins? Were it not that your correspondent is seemingly in earnest, coupled with his abstruse geometrical and partly perspective elucidation of an original (to him) third sweep, I would not trouble you with this article in behalf of an old and correct rule. His persistency reminds me of the story of a rat, who, finding his way obstructed by a file, nothing daunted by difficulties, set to work to gnaw it in two; the dust falling fast, he imagined he was making good progress, until a fellow-rat showed him that it was his own teeth he was wearing away. Foolish rat!

The French or Square Rule, is simply the name given to a number of directions by which may be found the exact shape and thickness of any piece of wood in a coach-body from a given number of concave or convex curves crossing each other at right, or any other angle. In fact the rule can be applied to get any surface where sweeps are used, from a "Boston shay" body to the sides of a ship. I am astonished that Mr. L. should sum up the so-called French Rule as consisting of but two curves, crossing each other at right angles. Two curves are the smallest number that can be used in the so-called "French Rule."

A word or two in defence of that arm-rail. Mr. L. complains that I make the projection the same as that for the top-rail—that I also make the projection of the bottom-side on the cant-board the same as the top-rail. Mr. L. evidently thinks I make the arm-rail the same sweep with the top-rail. Nothing of the kind, my dear sir. No arm-rail but a straight one placed parallel with the top-rail could be made the same sweep as the top-rail, and be correct. I will here observe, so that there may be no misunderstanding, that the Square Rule will give the arm-rail the same sweep *at right angle from the standing-pillar* as the top-rail. Any body-maker can readily see that when an arm-rail forms a number of acute or obtuse angles from the standing-pillar, the projection is obtained by the two curves; it *cannot* be marked out by a pattern the projection required.

I must abruptly finish this communication, lest its length recommend it to the waste-basket. I respectfully assert, and challenge a denial, that the so-called French Rule *will* direct a carriage-body maker to work the sides of *all* carriage-bodies correctly, *to any number of curves.* If acceptable, I will send you the Square Rule applied to framing the "swelled back" to a coach-body.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 24.)

According to Markland, who quotes from "The Diary of William Dugdale," stage-coaches were established as early as 1659. It is stated, however, that in 1672, thirteen years afterwards, there were but six stage-coaches in all England, and, as with the coach proper, they, too, met with the strongest kind of opposition from certain classes. In 1673, the tract entitled "The Grand Concern of England Explained" (see *The Harlein Miscellany*), who is self-styled "A Lover of his Country," enters the lists in opposition to them with a zeal which, from a modern view, only makes his reasonings appear the more absurd. This we have already given *in extenso* on page 42 of our second volume, and we need not repeat it.

Some idea may be had of the style in which coaches were built in 1688 from an inspection of Fig. 9, copied

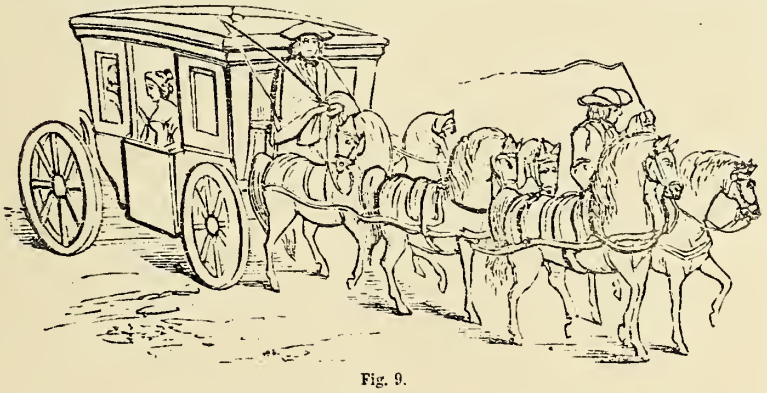


Fig. 9.

from a rare print by Romain de Hooge, in which William III. is represented as making his entry into the royal palace at Whitehall, in a "coach and six," for the first time, with a coachman outside, "on the box," and the postillion still retained as formerly. In this example the "boot" at the side, as originally named, still appears, with a passenger riding sideways, "crab-fashion," as Taylor facetiously calls it. This coach is said to have been mounted on springs, although they are not very apparent in the engraving. Although the driver's "box" would seem to have become an "institution," the "hammer-cloth" does not yet appear. It is not very creditable to the mechanism of that day that a "box" was necessarily added to the coach in which to carry a hammer, nails, pincers, ropes, and such other articles as were necessary in cases of accident. Afterwards, to conceal this clumsy box, the "hammer-cloth" was added, to hide the unsightly depository of remedies for broken wheels, shivered panels, and other defective portions of the vehicle, caused by bad roads and perhaps some mismanagement on the part of inexperienced coachmen.

In striking contrast with the last example is that seen in Fig. 10, which is supposed to have been built for royalty, to be used on state occasions. The original of this is said to be still in existence at Penshurst, in Kent, where it is absurdly shown as the carriage given by Mary, Queen of Scots, to her friend Lord Darnley. It is without doubt a production of a much later date, as it surpasses in model those of the "Good Queen Bess," and is not altogether

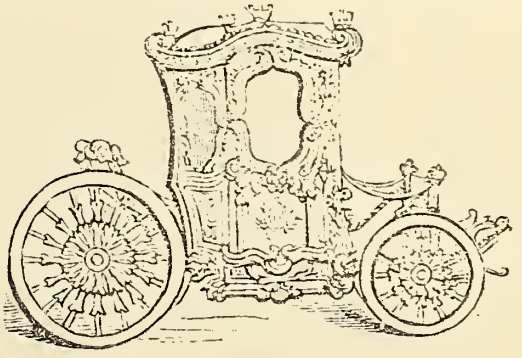


Fig. 10.

without claims to beauty in its decorative finishings. The elaboratively carved spokes, standards, and mouldings of the body must have greatly taxed the patience and ingenuity of the builder in "getting it up." Instead of a "box" for the driver, this appears to have a "standee seat" for that individual. This is light, compared with some others before referred to, but this advantage is due altogether to its being a one-seated affair.

Near the close of the seventeenth century (1696) coaches had assumed the form given in Fig. 11, which is copied from a well-executed copper-plate engraving in the British Museum. In this example the "foot-board" for the driver first appears. The body is less graceful in design than some we have already given, although intended for something *nice*. Here, as in the last example, we are presented with foot-men-standards. Here also, for the first example, appear

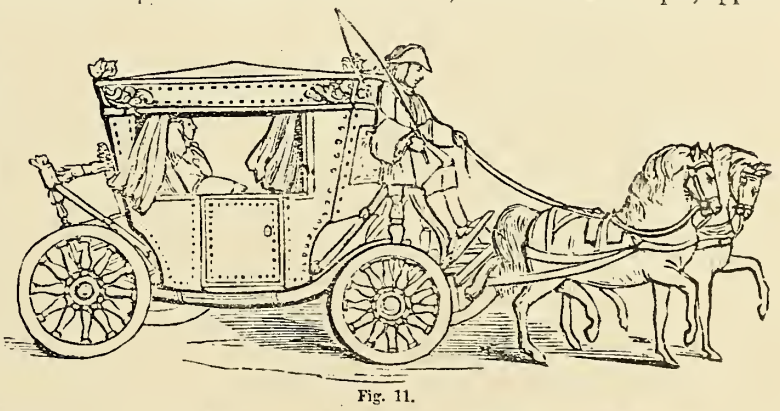


Fig. 11.

the sun-curtains, now so popular among us. The artist has not only given us the carved portion in detail, but the print-holes of the nails used in securing the panels to the frame-work, showing that the nicely-formed groove to receive them as now, was unknown at that time. Putty, we judge, was a very necessary article with the coach-makers then. This coach, when compared with Fig. 9, shows that the designer was rather behind the age in good taste.

The next example (Fig. 12), fifteen years since the last was made, presents many features of striking improvement. Instead of that half sitting, half standing position, the driver is treated to a comfortable hammer-cloth seat,

much like that in our day. Here the carving is distributed, with more taste, about the lower part of the body. From a passage in the *Tattler*, published March 11th,

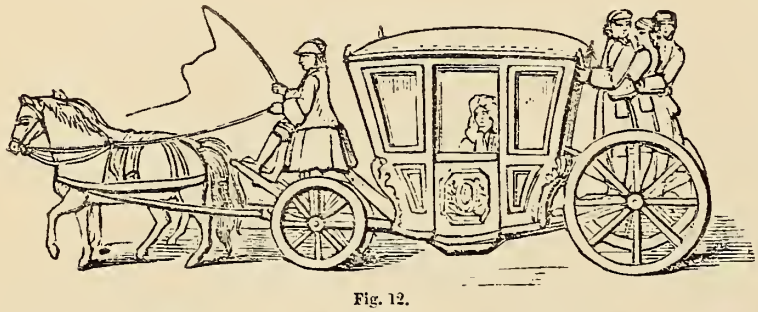


Fig. 12.

1709, we learn that carriages were then very numerous in the streets of London, the "horses and slaves of the rich taking up the whole street." As a remedy for this *disease*, a writer of the time proposes to tax them heavily.

"In December, 1703," says Markland, "Charles, King of Spain, slept at Pentworth, on his way from Portsmouth to Windsor, and Prince George, of Denmark, went to meet him there. We set out (as one of the attendants relates), and did not get out of the coache (save only when we were overturned or stuck fast in the mire) till we arrived at our journey's end. It was hard service for the Prince to sit fourteen hours in the coach that day, without eating anything, and passing through the worst ways I ever saw in my life. We were thrown but once, indeed, in going, but both our coach (which was the leading one) and His Highness's body-coach would have suffered very often if the nimble boors of Sussex had not frequently pushed it or supported it with their shoulders, from Godalming almost to Pentworth; and the nearer we approached to the Duke's house the more unaccessible it seemed to be. The last nine miles of the way cost us six hours' time to conquer them, and indeed we had never done it if our good master had not several times lent us a pair of horses out of his own coach, whereby we were enabled to trace out the way for him. They made us believe that the several grounds we crost, and his Grace's park, would alleviate the fatigue; but I protest I could hardly perceive any difference between them and the common roads.

"In the time of Charles, surnamed the Proud Duke of Somerset, who died in 1748, the roads in Sussex were in so bad a state (as I am informed by an intelligent correspondent) that, in order to arrive at Guildford from Pentworth, persons were obliged to make for the nearest point of the great road leading from Portsmouth to London. This was a work of so much difficulty as to occupy the whole day, and the Duke had a house at Guildford, which was regularly occupied as a resting-place for the night by any part of his family traveling to London. A manuscript letter from a servant of the Duke's, dated from London, and addressed to another at Pentworth, acquaints the latter that His Grace intended to go from London thither on a certain day, and directs that 'the keepers and persons who knew the holes and the sloughs must come to meet His Grace with lanthorns and long poles, to help him on his way.'" After roads, at this period, had been made, it required a good outlay to keep them in order. Many of the outlets from London cost nearly £100 per mile *per annum* to repair them.

The improvements made in carriages were in advance of the improvements made in the roads. Mr. Adams tells us that, "so late as 1760, a journey from Edinburgh to London occupied the time of eighteen days,—a part of the roads being only accessible by pack-horses. Within our own time may be remembered the uncouth 'turn-outs,' as a coachman would emphatically call them, both in private and public conveyances—heavy coaches, laden with ill-packed luggage; miserable horses bound with worse harness—all at the mercy of a red-faced, half-drunken, apoplectic coachman, with a wisp of straw for a hat-band, and buried under a weight of dirty drab capes and cotton neck-cloths, looking as if he united the double capacity of driver and passenger, sufficient weight for the coach being the passenger thereon."

Our next illustration (Fig. 13) is a singular one in many respects. It looks very much like an attempt to burlesque the sedan chair. It is taken from a print repre-

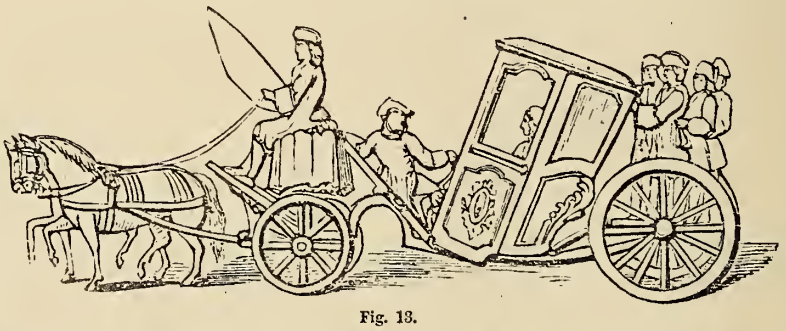


Fig. 13.

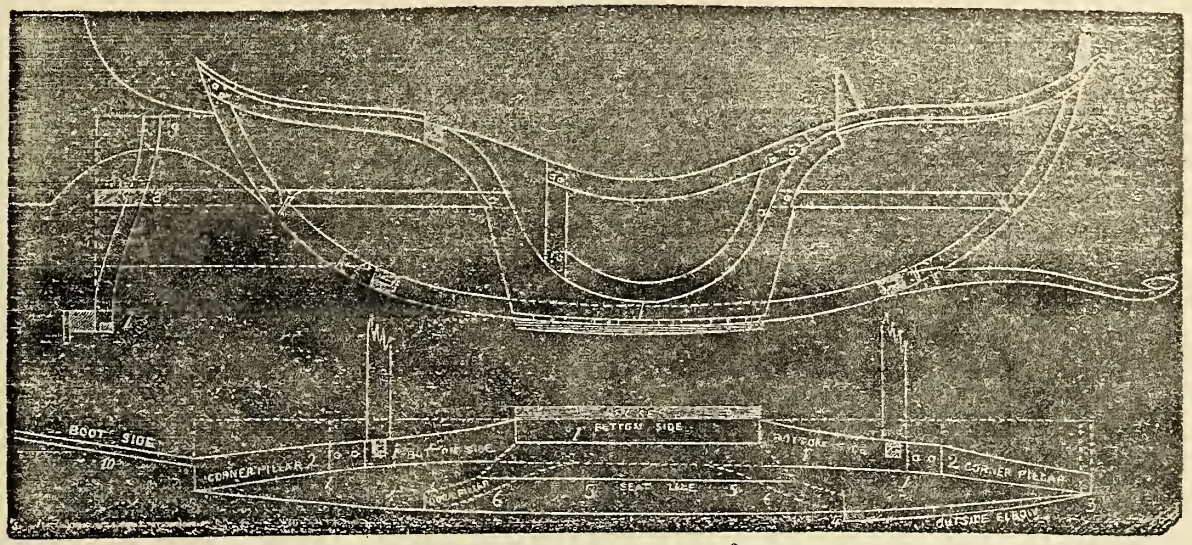
senting both houses of Parliament in a procession to Saint Paul's Cathedral, in the reign of Queen Anne, July 7, 1713, to return public thanksgiving for the Peace of Utrecht. The carriage-body is thrown back in a singular manner, which must have rendered it a hard thing to travel in. The coachman is more to be envied than any other, for he is furnished with a very comfortable seat. Not content with two, the stateliness of the occupant requires no less than five footmen—four behind, and one perched on the front, in a rather uncomfortable position. Could this circumstance, of an attendant *perched* upon the reach or stick connecting the two axles, have given rise to the name of "perch," by which it is at present known?

The poet, Gay, has left us a vivid picture of some of the common accidents in the reign of Queen Anne, when carmen were the greatest enemies of coaches. He says:—

"I've seen a beau, in some ill-fated hour,
When o'er the stones choked kennels swell the shower,
In gilded chariot loll; he with disdain
Views spattered passengers all drenched in rain;
With mud filled high, the rumbling cart draws near;
Now rule thy prancing steeds, laced charioteer!
The dustman lashes on with spiteful rage;
His ponderous spokes thy gilded wheels engage,—
Crushed is thy pride,—down falls the shrinking beau,—
The shabby pavement crystal fragments strew;
Black floods of mire the embroidered coat disgrace,
And mud enwraps the honor of his face.
Where a dim gleam the paly lantern throws
O'er the mid-pavement, heapy rubbish grows,
Or arched vaults their gaping jaws extend,
Or the dark caves to common shores descend;
Oft, by the winds, extinct the signal lies,

Or, smothered in the glimmering socket, dies
Ere night has half rolled round her ebon throne.
In the wide gulf the shattered coach, o'erthrown,
Sinks with the snorting steeds; the reins are broke,
And from the crackling wheel flies the spoke."

(To be continued.)



PARK SOCIABLE WITH CANT-BOARD.—$\frac{3}{4}$ IN. SCALE.

ENGLISH CARRIAGE ARCHITECTURE.—No. XI.

THE entire length of the bottom side is shown by figures 1, 1, 1, 1, from the shoulder in front to the back quarter pillar.

Fig. 2 represents the front and back corner pillars.

Fig. 3 shows the outside sweep of the body from the shoulders of the corner pillar and elbows.

Figs. 4 to 3 represent the outside arm curve.

Fig. 5 the seat line.

The dotted lines, 6, 6, show the inside sweep of the door-pillars.

The sweep at 7, 8, and 9, gives the outside cant of the body.

Fig. 8 shows where the seat intersects.

The line of the front boot is shown at fig. 10.

ARMY WAGONS AND TRANSPORTATION.

It is wonderful to think of the resources of the States inhabited by "greasy mechanics," and still more wonderful to see with what celerity they can provide the commanders of our army with all that is necessary in the Commissariat Department. On the 15th of April there was no means of transportation for an army in existence. "Army wagons" were among the unknown things at the North. These useful vehicles are never kept on hand. At the close of the Mexican war the army wagons were "sold for a song"—the song of the auctioneer, and very little money. Many a Southern planter stocked his place with good wagons at less money than the iron would now sell for as "old scrap."

We saw a lot of these wagons sold in New Orleans at less than the amount that had been paid for freight from Boston. Unfortunately then, as now, some of these hastily-built, "Government-contract" vehicles, were not worth much more than the value of old iron. The greatest error about their construction arises from a want of knowledge, on the part of the officers who order and accept them, of the great improvements that have taken place in this branch of mechanism within a few years.

In our young days, all farm wagons and carts had wooden axles, and great hubs and pipe boxes, to suit the necessary size of the modern shaft. Then came cast-iron arms to axles, and these, though an improvement upon the old hard-friction wooden axles, soon gave place to wrought-iron and smaller pipe boxes, and now no enterprising farmer would use wooden axles. And no farmer who knows of a still later improvement—an improvement upon all other iron axles as great as iron over wood—will now buy a new wagon that is not provided with "case-hardened axles and chilled pipe boxes," for this improvement saves nearly 25 per cent. of motive power.

Some of the farmers and market-gardeners about this city say that they can do their work with two horses, working every day, upon one of these improved wagons, with greater ease than formerly with four horses, changing every day and having to keep one pair idle to rest day and day about. If farmers can gain so much by using the best kind of wagons, why should our army be cursed with the fashion of bygone ages? A friend of ours saw lately in Washington a wagon but a few weeks in use, drawn by four mules, which seemed to labor so hard with the empty vehicle that he was induced to inquire the reason why of the driver, who happened to be an intelligent man who knew whereof he spoke. He said that the iron of the axle and boxes was so soft that it was already half worn out. It could not stand the sharp sand of the "sacred soil of Virginia." "Why, Sir," said he, "if I had such a wagon as I used to drive every day to the New York market, last year, I could do my work with two mules a great deal easier than I can now with four, and that is what I call economy. The axles and boxes were as hard and smooth as glass, and without grease would run as easy as these do with. I tell you what it is, if the Government would let some of the drivers buy the wagons, it would get a better set than they do now. I

wouldn't have one without chilled boxes, and axles as hard as steel, 'cause, you see, we can't always get grease here."

There is sense in these remarks, which should produce profitable results. The fast drivers about New York would as soon think of making time in a Mexican cart as in an old-style iron-axle wagon. They go for "all modern improvements." Government should do the same.—*Tribune.*

Home Circle.

For the New York Coach-maker's Magazine.

OUR MOTHER.

BY MRS. L. H. SIGOURNEY.

Our Mother's* fourscore years and five,
Yet always hale and hearty
She's been, and much respected, too,
By every age and party.

Yet all at once she droops her head;
Her children's quarrels grieve her;
And those in whom she trusted seem
To harass and deceive her.

Her property is quite a care,
Though bond and mortgage bind it;
And when she thinks her money safe,
She looks, and cannot find it.

We don't believe her memory fails,
For, when she's roused to duty,
Her eye gleams out as clear and bright
As in her youthful beauty.

Oh, dear old Mother! mayst thou live
With naught to vex or wound thee,
And, seated in thy great arm-chair,
See all thy children round thee.

HARTFORD, Conn., July 4th, 1861.

For the New York Coach-maker's Magazine.

THE SONG OF THE STREAMLET.

BY ISABELLA METZ.

Brightly and gaily the streamlet went dancing on its way to mingle its pure waters with those of the majestic river.† Murmuring, it glided round smooth pebbles, gleaming white in the reflected sunbeam that glanced down as if lovingly upon the bosom of the rivulet, through the openings made among the overhanging foliage by the fitful sighing of the breeze.

Between verdant margins ran the stream—margins of soft, green turf, enameled here and there with flowers. Water-lillies floated on its bosom, glorious in their simple beauty. Silence was around it; the blue sky of summer morning was above; beauty in a thousand forms surrounded it on every side, and crowned it with solitude and peace.

The streamlet felt its happiness, and in wild but gentle melody it sang:—"Gaily, peacefully, happily on I glide, to mingle my pure waters with those of the mighty river. Thus far, thousands of years have I been running, and thus to the end of time shall I continue to run my course, in sunshine or in shade, uncaring whither I go, unknowing whence I came, or what is to be my destiny when swallowed up in the great sea, to which the river is hastening also. Such was the course marked out for me, and for no other have I wish or ambition. To do that for which I was assigned—to be *always* doing—this is my only thought. And this, too, is the only thought of all the beings which exist around me.

The trees put forth their leaves in Spring, and their fruits in Summer: in Autumn their fruits and foliage fall, leaving the naked and desolate branches to bide as they may the piercing assaults of the Winter blasts. Spring comes again, and again the unwearied tree puts forth its leaves, and prepares to live over again the same unvarying round of duty. The grass and the flowers also fulfill, year after year, the task that is given to *them;* the birds build their nests and bring forth their young; the resplendent sun shines at his appointed time, as he shone in ages long past, and the lonely moon pours down her radiance nightly to glitter upon my breast.

Come to the humble streamlet; stand on its grassy brink, and see with what gladness of heart it glides smoothly along; swiftly now, with an arrowy flight, where its approaching banks give it but narrow space, and now with a more gentle flow, where, with its expanded surface, it lies spread out, like a lake under the clear sunshine and the celestial blue of the vault on high.

See how it rejoices in the accomplishment of its destiny, having ever before it only the one object for which it was called into existence—to mingle its clear waters with those of the majestic river; striving only to do that, cherishing no delusive hope or ambition, but putting forth all its powers for that purpose alone, and murmuring ever its song of contentment and joy as it speeds along in the light of its own beauty, in the happiness of its duty fulfilled. Never, save when hindered in its course, does it lift its voice in aught but the gentle song of content and joy. When some fragment of rock opposes its progress, then its murmur is changed to a loud and complaining note; but, by a turn to the right or left, the streamlet flows on again, peacefully as before, forgetful of the opposition it has met, and too happy for aught but its task, conscious of nothing but the blessing and the charm of that quiet which alone it seeks.

But come to my grassy brink at nightfall, when the shades of twilight hover around me and thee and the whole beautiful landscape,—come, wearied with long travel, and faint with the heat of the long Summer day; then bathe thy fevered brow in my cool stream, drink deep of my pure, cold waters, and lay this to thy heart:

Part of my winding course I run through broad, level plains, where no tree interposes its foliage between me and the clear, blue sky; part, also, through groves and forests whose deep shade *is* upon me, whose broad boughs wave above my breast, excluding the bright sunshine, and hiding the fair scene from me, as they hide me from the gaze of all who might love to look on my beauty. Yet, through the broad, level plain and the dark screening forest alike joyful I run, remembering that if in the former I shine out more fair, and have more to gaze on me admiringly as I flow, in the latter I find that peace and security which I so dearly love. There come no fierce, howling winds, to ruffle my tranquil stream—they

* By "Mother," of course, is meant the United States Government, and every patriotic heart must heartily respond to the sentiments of our fair correspondent as expressed in the last verse.—Ed.

† This article is the production of a young Miss in the Rutgers Female Institute, this city, and by the judges was pronounced the best of the Junior Class in the Collegiate Department. Through the kindness of H. M. Pierce, Esq., the President, we are permitted to give it to the public.—Ed.

waste their force on the tall trees at whose feet I glide; there come no falling floods from above to plow up my gentle breast and lash my quiet deeps into fury; they descend harmless upon the thick, overhanging canopy of foliage, under whose shelter I hide in safety.

Stretch thyself down beside me here in the mellow light of the Summer's declining sun, and gaze into my smooth-flowing waters. Thou beholdest thine own features glancing up to thine eyes from my watery depths. Swiftly my waters flow, and not for a single moment, not for a thousandth part of the time that is taken up in a single beat of thy throbbing heart, does the glassy surface beneath thee remain unchanged!

The water on which thou wast looking an instant since is gone from before thee to be there no more forever. Not more rapidly does the thoughts pass through the mind than the liquid plane from which thine own image is there reflected passes on its way to the broad river, supplanting for an atom of time the plane from which that image was reflected but now, and as rapidly to be replaced by another from which it will be reflected in turn!

Pen Illustrations of the Drafts.

THE NICHOLS'-FARMS HEARSE.

Illustrated on Plate IX.

The drawing from which our engraving has been made has been kindly furnished us by our friends, the Messrs. Nichols & Brother, of Nichols' Farms, Fairfield County, Connecticut, to whom we are under many obligations therefor. By comparison, it will be found that, in its general features, it very much resembles the one sent us by the Messrs. Kingsbury & Whitehead, of Albany, N. Y., and published by us on Plate XXII. of our second volume. It differs from that in these particulars: this has two oval glasses in each side, instead of one, by which means the expense in building is very materially reduced, and the front end of the body is made six inches narrower than at the back, by which contrivance a much lighter-looking vehicle is obtained. Within the body and above the floor there is placed a railway for the coffin to slide upon, which is fixed sufficiently low to be unseen from the outside. The price of this hearse is only $400.

PARISIAN WAGONETTE.

Illustrated on Plate X.

There are many purposes to which a carriage of this description is adapted, and therefore we take pleasure in presenting it to our readers. As a light business wagon, it cannot be surpassed. To fit it for the purpose, only requires that the back of the seat be removed and the sides sham-caned—painted in imitation of cane—to preserve a light appearance. As here drawn, it makes a convenient carry-all for summer watering places,—very light and airy.

NEW YORK BUGGY.

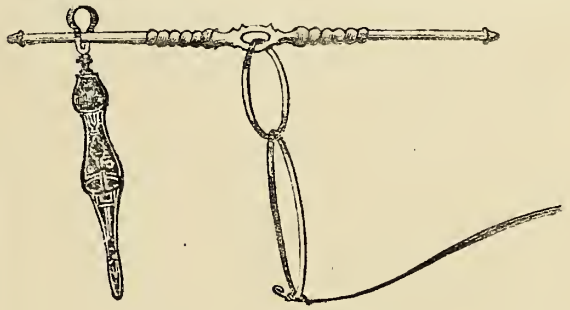
Illustrated on Plate XI.

This Buggy is very similar to the one published on Plate XXXIX., volume Three; this being the latest fashion. As in this example, nearly all the buggies made this year have been supplied with round-cornered and paneled seats. In this case we have mounted the body on long wooden side-springs, with scroll-irons, which arrangement should, we believe, be credited to Messrs. Stivers & Smith, of this city. It gives a lighter appearance to the vehicle, and is equally as effective as when finished with or without blocks.

Sparks from the Anbil.

FRENCH POMPÈ.

The French have some improvements that might be advantageously adopted by us. Among these is a fancy



iron rod, here illustrated. It is used for two-horse vehicles, with a pole, and is fastened to the collars of the harness, as shown above, the second one being held by a spring underneath the pole.

THE COMPOSITION OF STEEL.

M. Fremy has read before the French Academy another paper on the composition of steel. He states that the object of previous communications was to establish the following propositions:—1st. That steel is not, as generally believed, a carburet of iron, but a nitro-carbide of iron. 2d. Nitrogen, in the process of cementation, acts mechanically and chemically; it opens the pores of the metal and combines with it immediately. 3d. Iron, under the influence of too much carbon, is changed into cast iron, and steel is produced when the iron is submitted to the double influence of carbon and nitrogen. 4th. The problem to be solved in the production of good steel is not to use only those minerals to be obtained from certain districts, but to employ agents sufficiently powerful for steel-making, and especially to eliminate from the iron and the cast iron those parts which prevent the production of steel. 5th. Substances of the same class as carbon, such as silicium, and those of the same class as nitrogen, such as phosphorus, may combine with iron and constitute a family of steels. Thus we are able to explain the presence of silicium and phosphorus in steel.

It is natural, says M. Fremy, that the publication of propositions which overthrow opinions long established, raise questions of priority or self-esteem, concern impor-

tant interests, and which divulge for the benefit of the world methods that some persons desire to keep secret—that they should be widely criticised, and that it should be said either that my statements were not exact, or my discoveries were not new. But the most honorable iron-masters of France, who know all the uncertainties in the making of steel, have told me that my publications have rendered them an important service, and explain in a great measure, facts for which they could assign no reason; my demonstrations have appeared so exact, that they have tested them on a large scale immediately.

In regard to priority, Messrs. Saunderson & Binks have already shown the importance of nitrogen in steel-making; but their labors do not give those synthetic demonstrations which I have published. Also M. Nevill, in 1856, had made cast steel from a mixture of iron, sea salt, pulverized brick, sal-ammoniac, ferrocyanuret of potassium, and wood charcoal. But there is a wide difference between an empirical receipt and a well-established theory. Even in the most recent works on chemistry and metallurgy steel is at present considered as a carburet of iron. Amongst the manufacturers, steel was regarded as a combination of iron and carbon, and even those amongst my critics who employ the cyanuret of baryum in the manufacture of steel, supposed that this substance, though containing nitrogen, acted in the formation of steel simply on account of the carbon which it contained.

In the case of steel made in closed vessels containing only iron and carbon, the nitrogen is supplied from the air, or from the wood charcoal, which contains nitrogen. In the case of cementation by graphite, the recent experiments of M. Delesse have proved that graphite contains nitrogen. The steel which is said to have been produced by means of carburets of hydrogen not nitrogenous does not stand the tests of tempering, annealing, &c., and besides it contains some nitrogen. In the furnaces where puddled steel is made under a bed of scoria, there is more nitrogen than is taken up into the steel. Very soft and easily fusible castings have been produced by submitting iron heated red to the action of carburet of hydrogen. These compounds always contain foreign substances from the metal, the carbon, the sides of the melting-pot, the gases present, &c., yet the castings are principally formed of iron and carbon.

The presence of nitrogen in steel may be ascertained—1st, by treating the steel with an acid; 2d, by causing a current of hydrogen to pass over the steel at a red heat, which then loses its nitrogen as ammonia or cyanhydrate of ammonia. The different results obtained by experimenters who have passed hydrogen over steel, are easily explained. It is well known that ammonia is decomposed at a red heat, and that gases sometimes lose entirely their chemical power, and that a compound may not be formed at a temperature which will decompose it. Hence the operator who causes hydrogen to pass over steel at too high a temperature, will not decompose the steel, because he uses a gas or a heat which renders the formation of ammonia impossible.

Although it be admitted that the quantity of nitrogen in steel (not yet exactly determined) be very small, it does not follow that the proportions are without influence upon the properties of the compound. We know that an almost imponderable quantity of sulphur introduced into good Swedish iron renders it friable and injures its quality. By combining with gold a 10,000th part of bismuth or lead, it becomes brittle as antimony. Traces of lead or pewter modify entirely the properties of mercury.

To demonstrate this theory of the formation of steel, and to show that its production is due entirely to the nature of the substance which acts upon the iron, and which must be nitrogen, the following experiment has been made:—A bar of pure iron has been cut in two equal pieces. One of these pieces was exposed for some hours to the action of ammoniacal gas. The two pieces were afterwards placed in one tube of porcelain and made red hot. After three hours, upon examination, it was ascertained that the pure iron was transformed into cast iron, while the nitrogenized iron presented a deep and very regular cementation. Thus two pieces of iron, belonging to the same bar, were heated to the same temperature during the same and under the same circumstances, but only the piece containing nitrogen had been converted into steel.

M. Fremy claims, in conclusion—1st. Demonstrating the influence of nitrogen in steel-making by a series of original synthetical experiments. 2d. He claims that he was the first to demonstrate that nitrogen was a constituent of all steel. 3d. He has proved that nitrogen is always present, even in those cases where it was supposed that steel was made without it; and when nitrogen is not present, or there is no substance which supplies nitrogen, the product does not present the qualities of steel. 4th. The melting-pots employed in steel-making contain always enough of nitrogen for the formation of steel, even when they are covered with scoria. 5th. By causing hydrogen to act upon steel, under the conditions stated previously by M. Fremy, nitrogen is always obtained as ammonia; and all substances which act upon carbon as hydrogen does, will also deprive the substance tested of the properties of steel. 6th. The formation of steel depends upon the purity of the metal, the relative proportions of the substances containing nitrogen and carbon which are employed, and the conditions under which their combination is affected.

At the conclusion of M. Fremy's paper, M. Boussingault stated the results of some experiments made by him at the *Conservatoire des Arts et Metiers*. A steel wire (42 grammes) exposed for two hours in a tube of porcelain red-hot to a current of steam deprived entirely of ammonia, gave 0.25 milligr. of ammonia, only 5½ gr. of the steel used oxydized. 13 grammes of steel, submitted to the same treatment for 8½ hours, gave 0.5 milligr. of nitrogen, and the steel was partly oxydized. This steel, therefore, contained a very small quantity of nitrogen. It contained also sulphur, as M. Boussingault and M. Bouis had ascertained by the smell of vapor and by chemical tests during the experiments. No conclusion, therefore, can be drawn from these last two experiments regarding the question—Is nitrogen a component part of steel?—*London Mechanic's Magazine.*

Cast-iron and wrought-iron may be welded together in the following manner: Filings of soft cast-iron are to be mixed and melted with calcined borax, and the mixture sprinkled on both the cast and wrought-iron. These are then to be heated, when they may be welded the same as two pieces of wrought-iron.

Paint Room.

LESSONS IN PRACTICAL COACH-MAKING.

FOR three months the promised article, "Hints on Striping," coming under the above heading, has been suspended, to our great mortification, for we like, when we undertake a thing, to go through with it. We had written the author several times, but received no answer until now. He gives *us* so reasonable an excuse, that we think, after hearing his story, our readers will excuse him too, this time, if he will hereafter show himself what he professes to be—"your obt. subaltern:"—

CLEVELAND, O., July 5, 1861.

E. M. STRATTON, ESQ.—*Dear Sir:* I have this day received two favors from you, which were forwarded from Fostoria. In reply, I have to say that I have been "*soldiering*," and have just returned, and of course these are the first letters received from you. I am now in safe quarters, doing duty again with the brush, and herewith place myself under your command, if my services are acceptable. Awaiting your orders, I am your obt. subaltern, LIEUT. F. W. BACON.

As we do not like to be out-done in merciful acts, even by "Uncle Abe," we suppose we must grant a full pardon to the "seceder" this time, especially since we presume he was *led astray* by that old head, Gen. Scott, so easily and suddenly that *he had no time to ask our consent.* Scott is notoriously mum when Editors are around, and we suppose our "subaltern" was only "treading in the steps of his illustrious predecessor" by keeping "shady" until he had captured the enemy. Having now *fit* all his battles, our readers may expect to hear further from him in our next number.

For the New York Coach-maker's Magazine.

DRY-COLOR ORNAMENTING.

BY W. J. L. M.

IN the first place, take, in its dry state, crimnitz white, and grind it in spirits of turpentine and sugar of lead, in the proportion of two tea-spoonfuls to one pint of sizing. This should be ground in with the white. It will be found that it is no small job to grind this white as fine as it should be for sizing, but it is absolutely necessary that it be ground as fine as possible. Great precaution should be taken in grinding this white, for the slightest stone will spoil the brilliancy of the sizing. When the white and drier is thoroughly ground, add to it three parts of hard-drying, pale English varnish, and one part fat linseed oil. This mixture should be very thick—the thicker the better,—just thin enough to allow of its being mixed with the other ingredients. I have some in the shop which is sixteen years old, and the fact is, it works excellent.

Such are the ingredients; but mind, when this is done, you have not a good article yet. When new, it will work brittle. At this stage the preparation should be taken and corked up in a large-mouthed glass jar, and set in the sun for four or five weeks, taking the occasion to stir it up once a week or oftener. The older the article becomes the better it will be, and will flow easier and smoother. The difficulties experienced in spreading this sizing in a proper manner has been a great obstacle to the use of this system of ornamenting.

This sizing should be applied in the following manner:—First, there must be two coats laid on. Secondly, the first coat must be flown on smoothly over the design. Thirdly, the second coat must work out the features of the design. When this is done, leave the work to dry until it has become so hard that a camel-hair pencil will pass over it without sticking. This will require about two hours. Fourthly, the color must be applied with an ornamenting pencil, in the following manner:—Take the pencil and rub it in the dry color on a piece of drawing-paper, but very lightly, so as to take up but very little color in the brush, or you will have things "blotch up," and then run the pencil over the sized ornament very lightly. In this manner all the colors should be applied, using great care, so as not to get too much on. Here it may be necessary to say that no man of ordinary intellect need be discouraged should he not fully succeed in producing a good ornament in the first trial. It will require mental exercise and some practice, to become successful.

The few remarks I have here made is merely a general sketch of this system of ornamenting, and therefore it will be seen that every practitioner will have to exercise his own ingenuity before he can accomplish much at the business.

[The reader will find some remarks on Dry-Color Ornamenting in Volume I. of this Magazine, at pp. 73, 151; the first preparatory, and the second article more general in its application. These, in connection with the present article, will supply the amateur artist with a very satisfactory guide in this mode of producing ornaments, so little known in America.—ED.]

COLOR: ITS APPLICATION, ETC.

CHAPTER I.

THERE are few things upon which more diversity of opinion exists than colors, their adaptability, their application, their arrangements.

There are, indeed, few things which are not dependent on color for their form, for their distinctive character, for their expression of beauty, for their power of pleasure-giving; nay, for their very existence.

Man may play with and toss about the three-hued ball as suits best his whim; he may argue for or against certain conditions of situation in regard to the same three hues; he may change and interchange them as he pleases, and lay down certain rules for such change and interchange; he may express his opinions, and alter such opinions at his fancy's dictates; he may mix them or pose them according to his taste, or his will, his knowledge, his practice, or his ignorance; but their law, holy and immutable, is beyond his power to alter one jot; for the law which regulates color is not of man.

Like the laws of sound, or of numbers, the laws of color are determinate, and cannot be otherwise.

It would be difficult to picture to ourselves the sensations of the first man upon whom flashed the idea of the fact of completeness and perfection in one or each of the

primary hues: the fact that red, for instance, existed as a fact established, and which no combinations could produce; that blue, that yellow, were equally facts that were *in* themselves and *of* themselves only—equally complete as the triangle; incontrovertible as numbers; incapable of alteration, as the circumstance of two and two making four—which no earthly power could convert into five.

Nor are the laws of their combinations less certain, determined as they are by numerical calculation, and allied to and dependent upon each other for their not less certain results.

In the first place, be it observed, we take *color* as a sensation which, through the organ of sight, is produced upon the brain. It is to be understood, primarily, as having no tangible or bodily existence, but as being purely the effect of circumstance.

This will be evident in the fact that some persons are differently constituted to others in the appreciation of differences of color. Some are unable to discriminate between certain *classes* of colors; others, less wanting in the power, are at a loss only in the nicer shades of difference; but some there are whose organization in this respect is so imperfect that they are unable to distinguish one positive color from another—red from blue, for instance, or green from purple. This peculiarity, which occurs but rarely, is known as color blindness.

That the perception of color, more or less acute, is dependent upon habit, cannot be denied; and that the eye can be educated into more readiness of perception of it, is daily proved. Nor is it less true that persons who, in the desultory routine of such employments as call for no reflection, no practice of the eye in regard to the subject—persons whose small energies are wholly warped in other directions, become less and less sensible, not only to its beauties, but to its commoner sensations. And certain it is that the mass of the people inhabiting this great globe are sorely deficient of a moderate sense of sight with respect to the color of objects which are every day before their eyes; so much so, indeed, that were a hundred ordinary persons to be asked the apparent color of a distant tree, ninety-nine out of the number would, most probably, be unable to answer the question with any approach to truth.

In further proof of the circumstance of little power in distinguishing the niceties of color, we are told by an African traveler that the Nubian Arabs of the Upper Nile are in the habit of distinguishing the three grades of color in the inhabitants of the country—viz., the black, the copper-colored, and the intermediate brown, called by some coffee-colored—as blue men, red men, and green men.

Now, though the black man,—as we should call him,—may, by some stretch of imagination, be understood as a blue man from the colder hue of his skin; and the copper-colored be, not inaptly, classed as red, from the warmth of *his* complexion, it would require great faith in us to be persuaded that the intermediate brown man could be, at any time, taken for green. Yet such, we are told, is the state of the science in that locality that, because this brown or coffee-colored individual is neither red nor blue, he must, per force of reason, be green; and that simply because there is no other color left in *their* catalogue to represent him. He is not red, nor blue; and therefore he *must* be green.

While we are on the subject of difference in perception of color, we may be excused for starting a small hypothesis of our own.

We are tempted to consider that the complexion, cold or warm, sanguine or grey, of an individual, has much to do, not only with his perception of, but rendering of color. We have certainly some *color* for our argument, in contemplating the works of various artists in connection with their own personal distinctions of complexion. We shall not, at present, enforce this argument, but simply throw out the hint; and we do consider that an inquiry into the probabilities of such an hypothesis would be, to say the least, both curious and interesting. We know that the temporary bilious condition of the system has a powerful influence on the mind as well as the eye, and we do not see why a permanent characteristic of such condition should not be found to affect in a similar manner.

We know, also, that the sympathies of the eye and the ear are manifest and curious, that color and musical sound are closely allied as far as sensation goes. But of these sympathies, and the circumstances attendant upon them, we shall, perhaps, say more as we proceed with the subject of color.

In our next paper on this head, we shall give, in a diagramic form, the laws of color, and their application to our purposes.

(*To be continued.*)

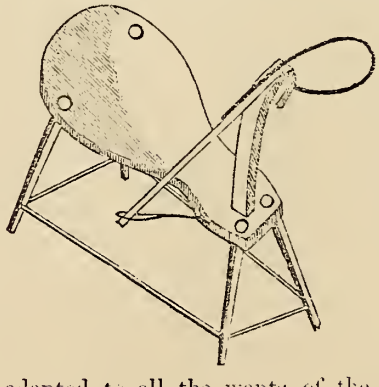
CHEAP DRAB-COLORED PAINT.

A valuable paint may be obtained from common clay. The process is to dry it well, pulverize it, run it through a sieve, and then mix it with linseed oil, making the mixture somewhat thicker than common paint. This will make a fine drab color, and, when laid on thick, will supply a first-rate ground-work paint. By burning the clay in a kettle before mixing with the oil, a good red color may be obtained.

Trimming Room.

TRIMMERS' IMPROVED STITCHING-HORSE.

Since stitching-horses, with trimmers, are a very important "institution," any improvement in them will be received with satisfaction by this respectable class of mechanics. Those heretofore in common use, though they may have answered a very good purpose, still have been found illy adapted to certain purposes, such as the stitching of dashes, carriage-tops, falls, &c., where these have been large, since the length of the jaws, made necessarily short for the convenience of the sitting workman, did not allow of sufficient room for the leather, without injury thereto.

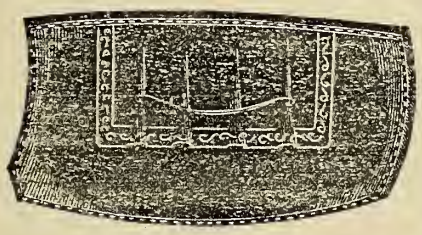


The one we now illustrate, on the contrary, is admirably adapted to all the wants of the trimmer, and also free

to all who may choose to make and use them, being untrammeled by patent-law restrictions. For this our readers are indebted to the liberality of the inventor, Mr. John Lathrop, of Newburgh, N. Y., the gentlemanly foreman trimmer of our esteemed friend L. J. Bazzoni, Esq., at that place, who kindly permits us to publish it for the benefit of the trade. An inspection of the engraving shows that in this new stitching-horse much of the *machinery* with which the old one is encumbered has been done away with—dispensing altogether with one of the jaws and the treadle. A curved lever, the bow portion being made of round iron, with an iron jaw attached—this should be covered with leather so as not to injure the job—to the end, and the handle, or lower part of wood, is hung so that this lever jaw is easily pressed against the single stationary one, holding the work for operating upon securely in place. This arrangement permits the top of a carriage, or any large article, to hang perfectly free, even down to the floor, when desirable. It is quite an improvement over the one we gave on page 92 of our first volume; in fine, it makes the most simple, convenient, and at the same time efficient, stitching-horse for the trimmer "now out."

DOOR-TRIMMINGS FOR A CALECHÈ.

The lining is simply a smooth and plain covering, furnished with a pine slat on the under side to keep it in place. This is done to straighten the bevel doors possess because of the swell. The straight inside trimmings form a pouch or large pocket, and is covered by a fall in plaits.



HARNESS FOR A CABRIOLET.

Illustrated on Plate XII.

Instead of our usual stitching-plate, for which, indeed, there is very little use, now that fashion has done away with much of the ornamental stitching on leather, we present our subscribers, this month, with drawings of a set of harness for a cabriolet, for which we are indebted to M. Guillon's publication in Paris. Our Western subscribers who, in connection with trimming carriages, make and repair harness, will here have a good opportunity to contrast the French with American styles, as applied to harness, and perhaps gather some new and valuable ideas for practical use.

Some sensible chap says, truly, that a person who undertakes to raise himself by scandalizing others, might just as well sit down on a wheelbarrow and undertake to wheel himself.

The New York Coach-Maker's Magazine.

AUGUST 1, 1861.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

Bound Volumes *of this work are sold, singly, for $3.50 per vol., or Vols. I., II., and III., when purchased together, for $9.00. The three volumes, bound (including the subscription for the fourth year), will be furnished for $11.50. The three volumes, in numbers, will be sent for $8, when ordered. Single volumes, in numbers, will be sold for $3, or any single number for 25 cents.*

Covers, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for 25 cts.), can be had at this office for 44 cents. When mailed (the postage on which we prepay), 55 cents. Any volumes left with us will be bound for 75 cents each in our uniform style.*

Our Agents.—*Mr. John Hewlett, of Toronto, and McKinley, Cowles & Co., St. Catharines, are the only authorized agents we have in Canada West. Mr. Hiram Mills, Lewis County, and Mr. Matthew G. Peck, Jefferson County, N. Y., will receive subscriptions for us, in their travels through the country.*

☞ *All letters directed to this office on business* not *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* not *complied with, no attention will be given them.*

F. J., of Maryland.—The work about which you inquire was of very little practical use to American carriage-makers, and too expensive for general circulation. It is now discontinued.

H. W. M., of N. Y.—We cannot purchase goods for strangers "on time." You should have enclosed a stamp in the letter, to pay return postage on the answer from us.

J. H., of C. W.—Magazines have been forwarded as directed.

H. B., of N. J.—No such book as the Trimmer's Guide is known to us, and after proper inquiry we conclude none has yet been published.

T. R., of Min.—The *Mercure Universel* is published in Paris, by our friend Mr. Guillon, at $5 a year. It has lately been very much improved, and is now issued in the Magazine form.

MODERN APPRENTICESHIPS.

In a previous article we advised parents and guardians to give a trade to such minors as were dependent upon their counsels for success during after life, that they may have the means of supporting themselves, and avoid thereby dependence upon others when they arrive at majority. This article we design to make supplementary to that, by examining some of the causes why there are so few really good and steady mechanics in the community at the present time. To understand this subject fully we must contrast together the old and the modern systems by which apprentices were moulded into mechanics and point out such defects in the latter, as may serve to "point a moral" for the benefit of the rising generation.

Formerly—say thirty years ago—when an apprentice left his parental domain to enter upon his apprenticeship, he was expected to become the inmate of his master's family, and the master was expected to keep a vigilant eye upon his manners, habits, and morals, as well when out of as when in the shop. At that day the larger proportion of candidates for mechanical occupations were taken from among the small farmers in the country, where boys having been brought up to labor, and freed from the temptations

peculiar to cities, had formed to some extent characters suited—if afterwards properly directed—for usefulness and respectability. In these circumstances, being kept under strict discipline, it had the effect of checking the follies and correcting the vices of youthful indiscretions. Another thing favorable to morals was in the fact that most trades were learned in villages, in direct communication with and surrounded by the agricultural classes, among whom, if found anywhere, the highest perfection of character is supposed to prevail. Unseduced by the temptations which abound in large cities, the youth was more inclined to spend his evenings around the domestic hearth, and to feel that he had an adopted home, second only to the one in which he had been nursed from birth. There were indeed some *homes* unworthy of the name, but in the majority of cases, when a parent entrusted his son to the care of another, he was very particular to place him in charge of such as had the best reputation among his neighbors for moral worth and mechanical ability. Then, too, a boy looked upon an indenture as binding the master to learn him a trade as well as himself to stay his allotted time out, and not as selling his liberty—or looking at the matter as one-sided only. The benefit of this was, the boy was obliged, if not altogether satisfied, to abide his time out, and disposed to make the best use of it, often when, had he been left to his roving inclinations, he would have gone astray, and perhaps remained an unfinished workmen all his life.

But how changed is all this, under the rule of *modern improvement.* In many respects the old system of apprenticeship is entirely abolished. The boy is permitted to board where he chooses, and, having no check upon his conduct when out of the shop, he grows up a reckless and unprincipled man, only studying how he can best *kill* his precious time, with no care for his future interests in life. Indeed, this misnamed *independence* is productive of all those sad results so masterly depicted and illustrated by the great moral painter, Hogarth, in his "Idle Apprentice." It is impossible to expect law-abiding and moral young men, where boys are suffered to be their own masters and under no restraint. That vicious habits may be checked and timely corrected, *all* young men need the gentle influences afforded by society as found around the family circle.

When the boy leaves the parental roof, his moral training then devolves upon other parties, but such duties need not be expected of boarding-house keepers, and therefore should be supplied from judicious discipline in the master's family, as formerly. He should not be left to *street-education*, the tendencies of which are to make him a rowdy and the perfection of everything vicious and disgraceful to his kindred. If possible, every facility should be afforded him for the improvement of his leisure hours, by reading; and, that his studies may be healthy, care should be had in the selection of the food offered to the mind of minors, lest they become poisoned by the *sickly* doses presented by the trashy issues of the press.

We fear that it is this modern system of taking apprentices without the "botheration" of having them in the house of the masters, nor under restraint from any other source, which has of late years been so productive of intemperance, profanity, and vices of many kinds. Is it not the fact that neglected appreutices furnish the best customers to the dram-shops? In order to bring about a reform, we must once more return to the old system of taking apprentices, and give them that moral discipline and culture without which the most promising lad often grows up to be the worst of men—a moral pest, and a disgrace to the human family, *as well as a miserable mechanic.*

REVIEW OF AMERICAN CARRIAGE-MAKING.

We dislike very much to meddle with a subject when we can say nothing very encouraging in relation thereto; yet there may be a period, even in such cases, where profitable lessons may be gathered for future benefit. Under these convictions we propose in this article to draw a picture of the rise, progress, and future prospects of carriage-building in these United States, for the edification of our readers.

There are many individuals yet among us who can remember the time when carriage-making was chiefly confined to a few of the cities and larger villages of the land. The work made was of the coarser kinds, accommodated to the wants of business, while for pleasure-seekers—and these, in a new settlement, are few—the finer and more expensive carriages were imported from abroad. With our struggle for independence, however, or rather with our growth as a nation, the order of things, as applied to the business, has been entirely changed. Instead of following the old conventional patterns of our predecessors and cotemporaries in Europe, we have, in the construction of our vehicles generally, struck out an original course for ourselves, accommodated to the difference in climate and the tastes of a progressive and energetic people. While we have been ever ready to adopt the approved plans of other nations, our minds have been untrammeled by prejudices, and exercised in a line of invention unprecedented in any other portion of the globe. While we exult in this conviction, still we are teachable, and ready to bring to our aid anything from abroad of real merit. We presume there is no other branch of trade where there is so great a difference in them as there is between carriage-making in Europe and the same business in America, and this is due to our entire freedom in thinking.

The opinion among business men has erroneously been,—as we think,—that carriage-making is more pecuniarily profitable than most other occupations. The con-

sequence has been, that too many non-mechanical persons engaged in the business, who were as ignorant of the costs incurred in getting up work as they were in knowledge of proper construction. It is very true this class of *mechanics* could not expect to succeed in obtaining custom near home, where they were known; but as long as a Southern market was found, *they flourished* for a while. Then, too, in a few shops, machinery was introduced; these all combined—the legitimate and practical workman, the non-mechanical and the machinery all together—manufactured more work than the wants of our people demanded, and, for the last four years, carriage-making has been overdone. By such means prices had so declined that the business was scarcely worth following, and now, that a war is upon us, full one half of the persons engaged in trade are ruined.

We, however, think we can discern better times in the future—that good must come out of evil. A great many who never should have gone into the business at all have and will *die off* under the pressure of the times; the scarcity of money will check manufacturing, and, from the same causes, the old carriages must be run until worn out. When peace is restored—the prospect now is that it soon will be—and the people return to the peaceful arts of life, carriages will again be in demand. This demand will have to be met, let us hope, by those better qualified to produce a good article than heretofore, and that, instead of the *cheap work*, so called—but which was always dear at any price—we shall have that which will be more creditable to us, more satisfactory to the purchaser, and, above all, more remunerative to the builder.

Carriage-making is an art-business we would like to find more profitable than it has been in this country for several years, both to journeymen and bosses; but how this is to be brought about, is the difficulty we would have solved. When it revives we hope there will be less customers looking for *cheap work*, and less *harpies* engaged in manufacturing it—that there will be only men found willing to make their work in the best manner, and only the kind of work so made in demand—men willing to make a fair article at living prices—that the *jackalls* in the business will all be dead and buried with "secession." To bring this about shall be our constant aim; and it will be the case if carriage-makers unitedly so will it. This "working for nothing and boarding one's self" is a matter which depends wholly upon those engaged in manufacturing, and in this, as in other things, we believe that "those who would be free must themselves strike the blow"—cease making and selling this miserable trash miscalled cheap-work, and advocate no other but the best which can be made, and refuse to sell unless a remunerative price is offered. When this is accomplished we shall find ourselves respected, and, what is of equal value, our purses more plethoric.

DEATH OF OUR LONDON COTEMPORARY.

ALTHOUGH "the craft" in this country have been shamefully misrepresented on several occasions by its editor, still it gives us real pain to learn that, with the number for March (Part 21), *The Carriage-Builders' and Harness-Makers' Art-Journal* expired, or, in the significant language of the American agent, "burst up." The announcement of this fact was made in the July number of the Magazine, but the large pretensions put forth to the public for its patronage, and the unblushing effrontery with which the British editor boasted of his "large circulation abroad," calls for something more than a merely passing notice. That it ever had a "large circulation in this country," never entered the brain of any American, unless it may have been the *brazen* carriage-maker of "one of the leading firms of Broadway," who had an ax to grind on the occasion. From an admission made to us in the office of the agency here, the circulation was under twenty-five copies at the time it "went in," and never exceeded that number. There can, therefore, on the score of jealousy in us, be no incentive for "kicking *the* dead lion."

The first number of *this* Art Journal was issued in June, 1859,—the initial number being the best ever published. This was due, chiefly, to the interest a few leading scientific carriage-builders in England, at the time, took in the enterprise. Why they did not afterwards continue their contributions, we cannot tell, but presume that the non-mechanical character of the editor—he not being a carriage-maker—gave them no hope of his being able to conduct the work in a manner creditable to the craft in England. Any one may see that, in conducting a mechanical work of a special character, the editor needs to be a practical mechanic as well as a good scholar; and where such is not the case he must fail. The British editor wrote us long ago that he knew nothing of the trade, and this might be seen in his subsequent manner of conducting the journal, even had he not made the acknowledgment. With the exception of the drawings, the contents were of little use to the craft, when not stolen from our pages, being mostly made up of such articles as "Stable Management," "South American Horsemanship," "Spurs," &c., of very little benefit to carriage-builders, and not likely long to draw nine dollars yearly from their pockets. To edit a Coach-maker's Magazine requires talent differing from all other editors. He cannot depend upon his shears for matter, for his field is a new one, and articles suited to his pages have not yet been written, nor printed. He is therefore dependent upon the contributions of the craft, and, when these fail, upon the productions of his own pen. We hope this fact may prove a warning to such as hereafter shall contemplate entering upon a business for which education has not fitted them. Let them remember the fate of the editor of *The Carriage-Builders' Art-Journal*. This circumstance leaves our

Magazine again the only one published on carriage-making on this globe, in the English language.

EDITORIAL CHIPS AND SHAVINGS.

New Uses for Old Springs and Cart-Tires.—Ex-Gov. Wise, of Virginia, in his late speech at Richmond, tells his "secession" friends to "get a spear, a lance; manufacture your blades from old iron, even though it be the tires of your cart-wheels; get a bit of carriage-spring, and grind and burnish it in the shape of a bowie-knife, and put it to any sort of a handle, so that it be strong—ash, hickory, or oak." *Wise* has evidently become *foolish.*

Bear-Freight on a Missouri Railroad.—A Missouri correspondent says that, during the first week's running of the cars on the South-West Branch of the Pacific Railroad, they carried about half-a-dozen passengers, but no freight whatever (though it took all that offered) except a live bear and a jar of honey. The freight on the bear was fifty cents; but he was unfortunately shut up in the same car with the jar, and before reaching his journey's end *bruin ate up all the honey.* The worth of the honey being two dollars, the Company had to pay that amount to the owner, *for sweetening the bear*, being a loss on *that* freight of $1 50.

Encouraging.—A friend in Wisconsin writes us that "earriage-making in that State, at the present time, is better than it has been before at any time; and we are so located that the war is not going to affeet business any more than by the depreciation of Southern State stock, of whieh we have too much."

Felloes *vs.* Fellows.—It is credibly reported by W. H. Russell, LL. D., etc., the correspondent of the London *Times*, who recently traveled through South Carolina, that "the chivalry" are elamorous for a king, and think if they could only get one of Victoria's sons to take *that* situation they would be perfectly content. The editor of a Georgia paper, *The Athens Watchman*, boasts that Mr. Royal, of that city, is making *felloes* superior to those of Northern manufacture. The question arises, are these *Royal felloes* superior to those other *Royal fellows* after which the "Southerners" are so ardently longing?

New York Doctors and French Ambulance Wagons.—The class of "professional men" who would sooner saw off a leg than a stick of wood have lately *put their heads together*, in this city, and held "a consultation" over drawings of the French ambulance wagons of the latest patterns, as used in the Crimea, &e. This ambulance is an omnibus-shaped vehicle, drawn by two or more horses, and weighing some twelve hundred pounds, constructed in such a manner that the several pieces may be easily detached, and the most important parts rendered conveniently portable. The inside of the ambulance contains a row of beds for six or eight men, with ease, but, when crowded, ean accommodate three times that number. Each bed is a portable cot or "field-stretcher," which takes the wounded man from the field and places him in the portable hospital without fatigue. A bath of india-rubber is also attached, with other conveniences for the comfort—as far as possible—of the wounded.

A New Stirrup.—A valuable invention has lately been perfected by a cavalry officer in the army. We allude to the "eagle stirrup," manufaetured by Wm. H. Hazard, of New York city, who has also been appointed its agent. The stirrup heretofore in use was a mere rest for the foot, whereas these not only afford additional support, but bring the feet parallel to the horse's sides, and nearer, according to the pressure thrown upon them, and the point of suspension at which they are adjusted; while the toes being inclined inward, the spurs are kept free from the horse. As a practical substitute, too, for a safety-stirrup, they will doubtless prove invaluable, as, upon the rider being thrown, the stirrup turns up and allows the instant extrication of the feet. These stirrups are adapted for military, civic, and ladies' use, and are variously constructed, according to the different positions now in vogue for riding throughout civilized nations.

Carriage Materials in Canada.—Messrs. McKinley, Cowles & Co., at St. Catharines, C. W., are constantly manufacturing every description of bent stuff for earriages, buggies, sleighs, &c., and keep on hand a good assortment of hubs, spokes, and other articles required in manufacturing earriages. We are satisfied, from the references they give, that it will be to the advantage of our friends in Canada to give them a call. These gentlemen are authorized to receive subscriptions for this Magazine, and any receipts for moneys paid to them, for us, will be duly honored.

Street Railways.—In the Commons, a bill for enabling people to make railways in the streets eame on for a second reading. This is the plan of Mr. Train, an American gentleman, who has actually got two such railways at work in London, and who, if he never does anything else, deserves the gratitude of the English lady, for shaming the proprietors of the dirty, inconvenient nuisance, called the British Omnibus, by producing a vehicle into which a woman can step decently, and sit in cleanliness and comfort. Also for substituting neatly uniformed and civil men for the coarse cads who at present bawl behind the buss. However, the question of giving the powers required by this bill is a distinct one from that of the advantage of the Train vehicles, and the bill was negatived after—perhaps because of—a smart speech in its favor from Mr. Bright.—*Punch's Essence of Parliament.*

The Humorist's Column.

"A little nonsense now and then,
Is relished by the wisest men."

A Lady, paying a visit to her daughter, who was a young widow, asked her why she wore the widow's garb so long. "Dear mamma, don't you see," replied the daughter, "it saves me the expense of advertising for a husband, as every one can see I am for sale by private contract?"

An inventive Yankee has produced an apparatus which he says is a cure for snoring. He fastens upon the mouth a gutta-percha tube leading to the tympanum of the ear. Whenever the snorer snores, he himself receives the first impression, finds how disagreeable it is, and, of course reforms.

A young "buck," now-a-days, is curiously compounded: he has a *beaver* on his head, a *goat-ee* on his chin, *kids* on his hands, *calves* on his legs (and *doe*-skin also), casts *sheep's* eyes, and is looked upon by his *doe*-ting duck as *deer* at any price.

"Why did you leave your last place?" inquired a young housekeeper, about to engage a new servant. "Why, you see, ma'am," replied the applicant, "I was too good-looking; and when I opened the door folks took me for the missus."

Mrs. Partington says, the only way to prevent steamboat explosions is to make the engineers "bile their water on shore." In her opinion, "all the bustin' is done by cooking the steam on board."

A hen-pecked husband writes, "Before marriage, I fancied wedded life would be all sunshine; but afterward I found out that it was all moonshine."

An unmarried lady of a "certain age" received a letter from a romantic young school-girl, which contained the following ambiguous passage: "Now I wish, my dear Adelina, my engagements would permit me to leave town and go to see you. It would be like visiting some old ruin, hallowed by time, and fraught with a thousand pleasing recollections!"

INVENTIONS APPERTAINING TO COACH-MAKING, AT HOME.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS.

*** To Inventors.—Persons who have made improvements in, or hold the right to dispose of, inventions relating to carriages, will find this Magazine the best medium through which to advertise their patents. It is taken by, and has a very large circulation among coach-makers in every State of this Union and the Canadas, and a respectable circulation in England. The terms, which are very liberal, will be made known by letter, to correspondents, when directed to the Editor.

May 21, 1861. Improved Sled Brake.—A. S. Clark, of Dryden, N. Y.: I claim the combination of the link, E, and beam, H, with the slotted arm, D, the whole being constructed and arranged as and for the purpose herein shown and described.

Improvement in Upsetting Tires.—Benjamin Upton, of Elyria, N. Y.: I claim the adjustable center-pin, *b*, passing through slots, *l* and *o*, said slots running the exact specific direction in combination with radical keys or wedges, *i* and *i*, constructed as described, for the purpose of centering the tire to be operated upon, and thereby prevent its being distorted or kinked, the whole being constructed in the manner and for the purpose substantially as specified.

Improvement in Wagon Brakes.—J. S. Whisler, of Albany, Ill.: I claim the combination of check-piece, N, having a hook, *k*, with the rear part of the tongue and crankshaft, B, as and for the purpose set forth.

May 28. Improvement in Callipers.—J. H. Call, of Springfield, Mass.: I claim the construction of inside callipers, with a micrometer, screw, and spring, substantially in the manner as set forth.

June 4. Improvement in Carriage-Steps.—H. T. Betts, of Springfield, Mass: I claim the bent lever, G, and slotted arm, E, or their mechanical equivalents, when operating substantially in the manner and for the purpose set forth.

Improvement in the Frames of Buggy-Tops.—J. H. Havens, of Troy, Ohio: I claim the combination of standard, B, with arms, I and H, a longitudinal braced arm with wings, K and J, the whole so constructed and arranged as and for the purposes set forth.

Improvement in Axle-Collars.—E. S. Scripture (assignor to himself and Edward White), of New York City: I claim, *First.* The metallic cellular collar, made in the manner shown, and for the purpose or purposes set forth and described.

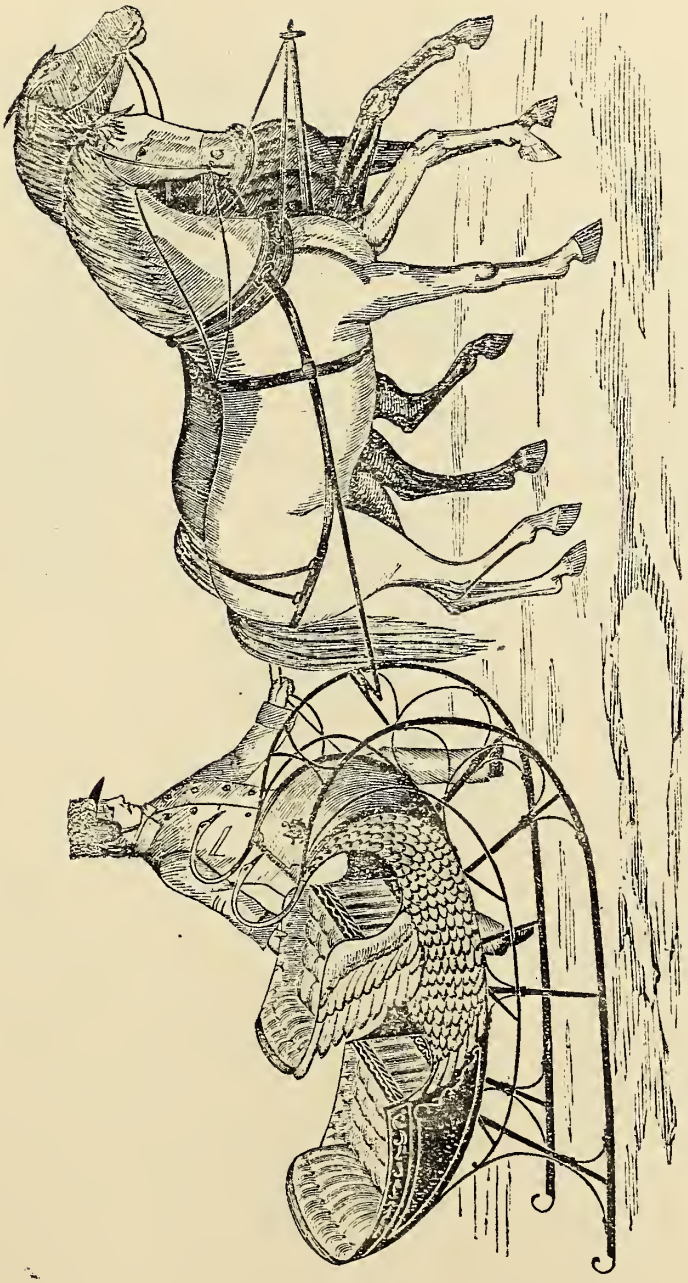
Second. I claim the sectional slide-packers, made in the manner and for the purpose described.

Third. I also claim the metallic cellular collar, the sectional slide-packer, with its flange, in combination with the protecting collar, flange, and gasket, when the same shall be used substantially in the manner as shown, and for the purpose or purposes set forth and described.

Improved Car-Spring (a re-issue, originally patented Jan. 3d, 1860)—Richard Vose, of New York City: I claim placing the india-rubber disks of said spring between interposed disks formed of some fibrous material, substantially in the manner and for the purpose set forth. When the india-rubber disks in a car-spring are placed between interposed disks formed of some fibrous material, I also claim combining internally-grooved metallic rings, G G, with the peripheries of said disks, substantially in the manner and for the purpose set forth.

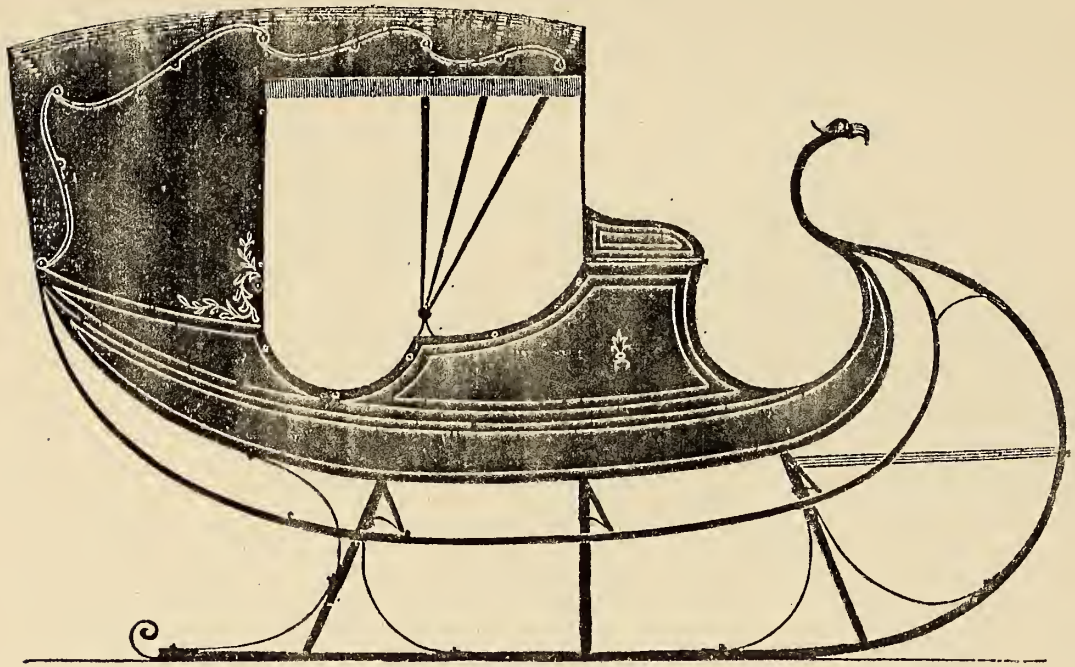
June 11. Improvement in Carriage-Bodies.—W. C. and J. Dunn, of New York City: We claim, *First.* The combination of the open body, A, with the standing top, formed of the end-pieces, E E, top, F, panels, G, and doors, H, secured together as and for the purpose set forth.

Second. The combination of the permanent open body and crash top with a standing top, constructed as explained, the whole being adapted and arranged to form a new and improved convertible body for vehicles, as set forth.



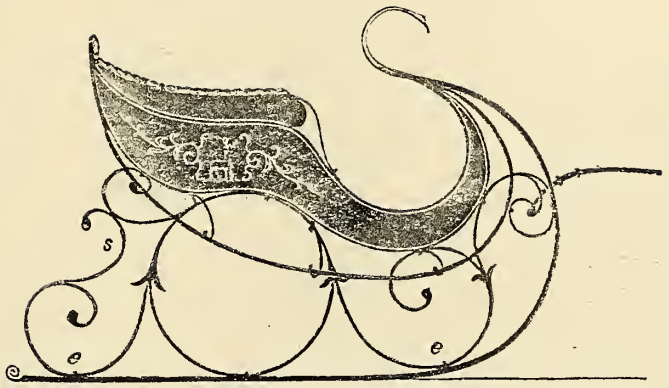
SWAN SLEIGH.—SCALE. UNCERTAIN.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 65.



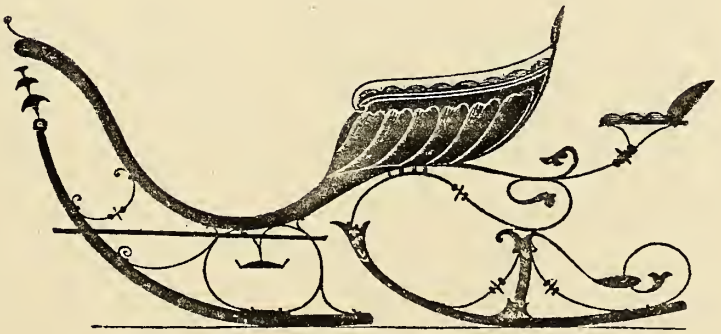
THREE SEATED DOUBLE SLEIGH.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 65.



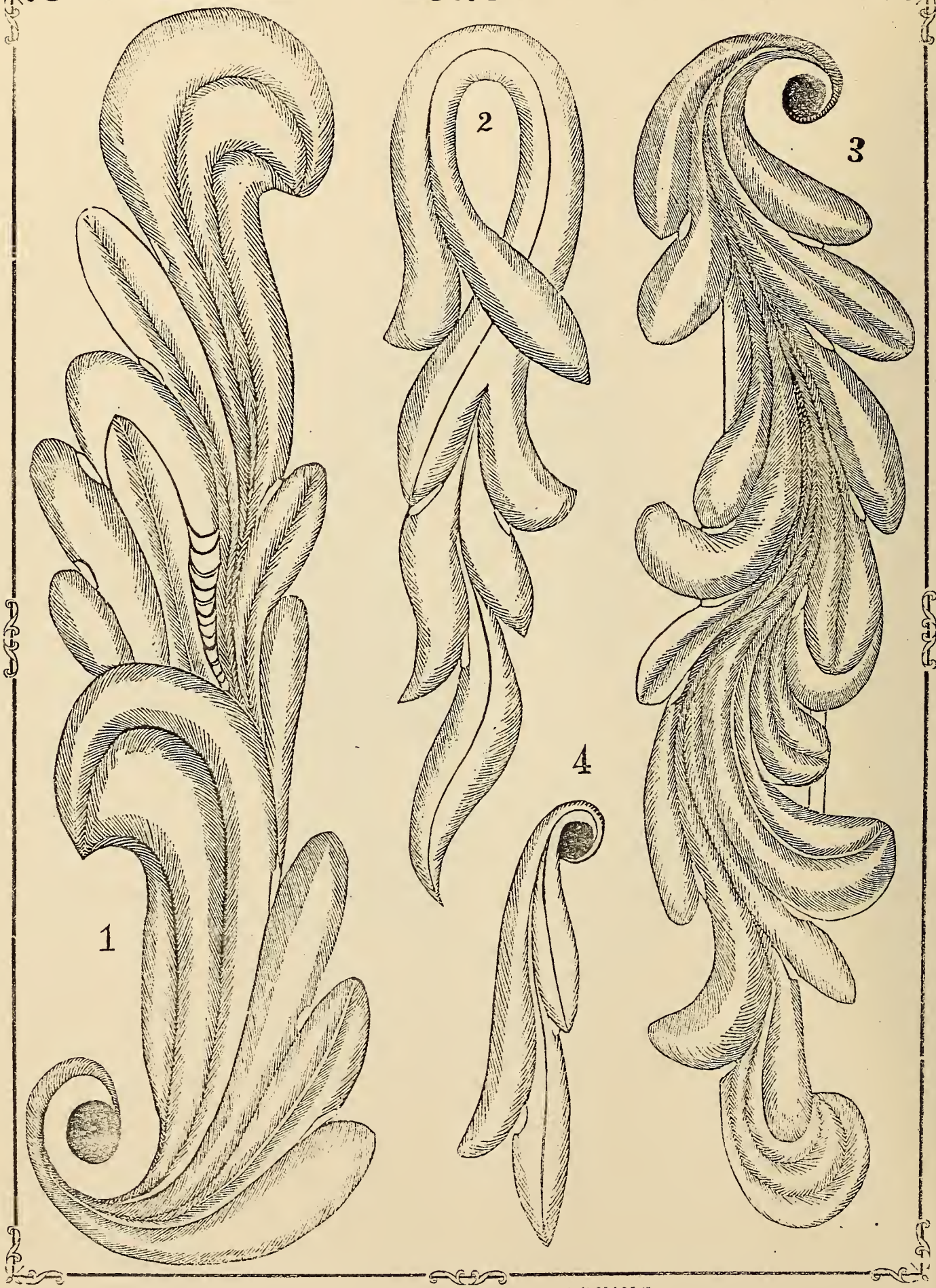
SCROLL CUTTER SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coachmaker's Magazine.—Explained on page 65.



FANCY SLEIGH.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.
Explained on page 65.



DESIGNS FOR CARRIAGE-PART CARVING.—FULL SIZE.

Engraved expressly for the New York Coach-maker's Magazine.—*Explained on page 65.*

THE NEW YORK COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, SEPTEMBER, 1861. No. 4.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(Continued from page 43.)

FINDING it impossible to disengage the boat from the snag on which it was firmly fixed, and of running her ashore, all efforts in that direction were abandoned; the engine had ceased to move, and all seemed busily engaged in constructing something for their personal preservation—something by which life might be prolonged and themselves saved from a watery grave.

I was an expert swimmer; had never lost confidence in my own ability; had never feared a watery grave; could have swam the Ohio back and forth without fatigue; but, as I stood in the midst of that scene of misery and despair, a sensation of fear—of horrifying fear—seized upon my senses and caused me to recoil from the very thought of struggling with the cold, merciless current. The passengers—men, women, and children—in their scanty apparel, donned in the hurry and confusion of the moment, were clustered together on the deck, with faces blanched with excitement and terror, or rushing in the wildest agony imploring those around them for assistance in bursts of terror that no pen can adequately describe.

Although darkness still predominated, it was easily perceived, by the artificial lights on board, that the wreck was fast settling to the bottom; and, as the time that it was supposed she would remain afloat decreased, the wild tumult of shouts and shrieks from the passengers, in their apparently hopeless condition, increased continually, freezing the blood in the stoutest hearts. It was now silently admitted to be utterly impossible for all to be saved from the untimely fate that seemed to stare us in the face, but that some must certainly sink to rise no more. The officers and crew who yet remained on the wreck—for a number of them had already undertaken to swim ashore—were working faithfully and energetically to launch such small boats as they had, while enough of the frantic crowd to sink them to the bottom stood ready to spring in the moment they were afloat. Rafts were formed of doors, shutters, beams, wood, in short, of everything that could possibly be procured, that bore the least appearance of preserving life or giving temporary support for a moment. Men were seen plunging into the water with boxes, barrels, chairs, board, cord-wood, and life-preservers, while women implored them with tears and prayers to save them and their children.

The boats were finally launched, and the captain, with firm voice and hands, resisted the distracted crowd until they had been loaded with women and children, as they turned from the wreck and disappeared in the darkness, leaving many who had been rejected standing upon the deck with a death-pallidness upon their countenance and horror depicted in every feature. By the light of the lamps, which still emitted their rays as brightly as if nothing had happened, could be seen on all sides those who, in hope of swimming ashore or in the folly of their mad desire for life, had plunged into the current, there struggling and writhing together, presenting a scene of human casualty which beggars description. Some swam off nobly, while others struggled, writhed, shrieked, and then sank from sight forever.

The wreck now seemed to lurch and groan in the last throes before going down; while, amidst screams and shrieks, the water was again dotted with human beings, offering a sight which I never again wish to behold.

I had ultimately resolved to swim ashore, as there remained apparently no other possible means of salvation. As I stepped forward to plunge off, some one touched my arm, and, handing me a life-preserver, asked me if I could swim, saying we must do something to rescue those drowning around us, who, without immediate assistance, must certainly perish. This man proved to be one of the clerks of the boat, who chose rather to remain on the wreck and do what he could to save the lives of others, who were helpless, than save his own, as he might easily have done. "Quick!" exclaimed he, assisting me to adjust the straps upon my shoulders, "we may do much good yet, if we act promptly, toward rescuing those poor, perishing mortals." The next instant he sprang over the rail into the water. I followed the example he set, and, together, we proceeded to assist those nearest us. After doing what I could for those around

me, I proceeded a short distance to where an upturned face was revealed in the light of the lamps, thinking that I might yet render assistance. I found the person to be a lad of perhaps sixteen summers, with an intelligent countenance, who, in aftertime, proved to be a very intimate and agreeable companion of mine. Raising the youth, I placed his arm around my neck, and started in search of something on which he would be secure until the boats could return. As I slowly pressed forward with my burden, I heard the voice of the clerk calling to me, in faltering tones, for help. Turning, I beheld my friend in the embrace of a drowning man. He struggled hard to disengage himself from the tenacious grasp of his burden, who he had endeavored to rescue from the "jaws of death," but to no avail, for the man proved to be too powerful for him, fatigued as he was by swimming. I turned my head but a moment, though when I looked again they had both disappeared beneath the wave, and I saw my friend no more! I afterwards went in search of him, but could discover no trace whatever. I had not proceeded far before I discovered a large piece of wreck capable of sustaining eight or ten persons, upon which I deposited my burden. He appeared to retain a slight degree of consciousness, which, with what assistance I could render, was soon to a great extent restored, and I found my friend to be an agreeable and intelligent associate.

The gray streaks of morning were making their appearance in the eastern horizon, and things began to reveal themselves as they really existed. The improvised rafts, pieces of timber, a portion of the cabin, and other parts of the wreck, dotted with human freight, were seen drifting together down the current, presenting a scene, in the dim light of morning, of despair and gloom, that caused a shudder to pass over my entire frame.

The officers and men who manned the boats performed their duties with every possible degree of promptitude and energy, for which they deserved and received the heartfelt praise of all the survivors of that eventful night, for the manner in which they conducted themselves in rendering all possible assistance to those who otherwise must necessarily have perished, and the firm composure and wonderful self-possession maintained throughout the entire catastrophe.

Now, that daylight was upon us, we were not long in beholding the survivors all landed upon the shore, when it was discovered that only thirty out of that entire number of persons who had been so gay and mirthful the day before, on that beautiful steamer, had perished, and now slumbered beneath the wave. But one question, and it unanswerable, seemed to prevail: Who have perished?

None present could supply themselves with a change of apparel, for there was not a solitary instance where anything had been saved from the wreck.

The anxiety for the safety of friends and relatives seemed to predominate over everything else, and although a brisk, chilly wind, prevailed during the early morning, that would have been severely felt on any other occasion, it passed seemingly unfelt and unnoticed.

Some ran frantically through the crowd inquiring for their friends, some wept bitterly over their loss, others sat and murmured because their baggage was not saved, while others thanked God, upon their knees, for His providential interference in preserving so many from the awful fate that seemed for a time to be inevitable. It was astonishing to think that only thirty out of that vast concourse of passengers should be lost, considering the imminent danger on every side, darkness aiding the wave in the destruction of human life, seemingly that the grim monster's thirst might be the more completely satisfied. The information of the loss of friends was very mournful to witness, and the meeting of friends that thought themselves forever separated was affecting in the extreme. The reunion of husbands and wives, of parents and children, of friends and associates, that expected never to meet again, brought tears to many eyes.

We had not been on the bank long before the villagers and those living in the vicinity assembled in rural simplicity around us to offer us the hospitality of their homes and firesides. After a short consultation the citizens agreed that we should abide at the village hotel for the day—our wants being attended to there—and that at night arrangements would be made as necessity required. Every heart throbbed with an impulse of gratitude for the kindness lavished upon us in this, our time of need, by these truly good and christian people; and certainly no heart can be so hard as to allow, for a moment, the remembrance of such generosity to fall from the wall of memory, or to be erased by the withering hand of time. But the gratitude that was actually felt and continually acknowledged on that occasion could be better appreciated when personally witnessed than when described by the pen.

At the conclusion of the consultation we assumed the line of march toward the hotel, which was situated but a short distance from the place of our landing. We soon found ourselves in very comfortable quarters, and as the warmth of the fire relieved us from the dampness of our apparel, and the sun began to warm the earth with his oblique rays, the wonted hilarity of the passengers, which had been so completely submerged in our late melancholy disaster, began to reappear.

The day passed off gloomily enough for many, especially those who mourned the loss of friends and associates. For my own part, I was as lonesome and disconsolate before the disaster as after it. I had lost no friends,—in fact, had none there to lose; yet I deemed it not unmanly that a sympathetic tear should fall for those in distress around me.

As the day progressed every effort was made by the villagers to make us comfortable, in the way of providing a supply of clothing and other necessaries; and as the evening drew near one would not have known the company, so material was the change of aspect. Bursts of laughter might occasionally be heard from the very persons who had been in such imminent danger and had so narrowly escaped death. How very strange to think with what rapidity events, even of the most startling nature, pass into oblivion from the human mind!

Being very much fatigued and rather indisposed from my over-exertion the evening before, I retired early to my sleeping-apartment, and was soon traversing with elastic tread over the golden and verdant fields of dreamland. The sun was shining into my window when I awoke, and admonished me of the propriety of arising and making preparations for my journey. As I passed from my room, I was met by a tall, handsome youth, with a lady upon his arm. Approaching me, he raised his eyes to mine with a sad but pleasant smile and re-

marked that he hoped I would not receive it as an intrusion should he presume to claim my attention for a moment, while he expressed his gratitude for the exertion I had put forth in rescuing them from the perilous position in which death must have been inevitable had I not so opportunely interfered to render them assistance. I assured him it was not an intrusion, and that I claimed nothing more than the knowledge of having discharged my duty. He then introduced himself as Henry Clifton, and the lady as his sister, who had probably been picked up by the clerk soon after we sprang from the guard.

They lived in the State of Indiana, and were then returning from a visiting tour in Pennsylvania. During the morning a report was circulated that a considerable quantity of baggage and valuables of different kinds had been picked up along the river below, consequently I was detained from my journey, for the time being, in hopes of recovering mine. Henry Clifton and myself were soon seated on a rustic wagon, beside one of our benefactors, on our way down the river in search of our luggage. Numbers of the citizens were still busying themselves in picking up property and bringing it ashore; yet I and Henry were doomed to be disappointed,—our baggage had not been recovered. So, after exhausting our store of patience in vain search, we started for the hotel, rather tired for going. During my stay I frequently met my young acquaintances, and before we separated we became very intimate friends.

The third day had arrived, and yet I had recovered nothing, so I prepared to go further on my journey. As I had nothing to pack up, I was not long in making all necessary preparation for departure. A small steamer was advertised to pass down the river at that time, so I announced my intention of taking passage on the packet for some place where I could procure employment. I was advised by the landlord to stop at Gallipolis, as he thought I might do well at my business there.

My two friends insisted that I should remain a few days and accompany them, but I averred my determination to proceed at once. They accompanied me to the river-bank, seemingly determined to dissuade me from my purpose, and finally talked of their home and its surrounding pleasures, and most cordially invited me to visit them, where, they assured me, I would be warmly received by their father. As the sun shone full in the face of Annie Clifton, I thought I never had beheld such rare beauty before,—such a combination of refined accomplishments and graces portrayed in the features and manners of woman! A boat was sent ashore, which aroused me to the necessity of bidding them adieu. The tears that glistened upon the cheeks of my young friends manifested the fullness of their hearts as we separated, and I confess I felt loth to part with them.

The boat now passed away in defiance of the many dangers imbedded beneath the channel's surface. Time progressed slowly enough until I found myself at the termination of my journey, when I began to look around for something to do. I first visited the different places where any pretensions to carriage-making was made, but without success. I next called at a wagon-shop, where I succeeded in making a contract, at nine dollars per week, to work on wheels, which, under the existing circumstances, I deemed as being very favorable.

Vanity.—A string of empty carriages at a funeral.

For the New York Coach-maker's Magazine.

PRINCIPLES OF DRAUGHT IN THE MANUFACTURE OF WHIFFLE-TREES.

BY S. EDWARDS TODD, ESQ.

It is a very rare thing that we meet with a whiffle-tree of correct proportions. The chief and almost universal fault in the manufacture of whiffle-trees is too much timber, and too large a proportion of strength near the ends, in comparison with the form and strength at the middle. It is a very universal occurrence to have a whiffle-tree break near one end before it breaks at the middle, which shows, most conclusively, that there was a very great disproportion between the size of the parts. There is, in most cases, twice as much timber in wooden whiffle-trees as can be of any available strength; and this surplus of timber too often renders them very cumbersome and inconvenient; and this is especially true of whiffle-trees when plowing or harrowing. It requires only a small piece of wood to make a whiffle-tree strong enough to hold all that a most powerful horse can draw, providing it is made of the most correct proportions. There is not a little science, after all, in making a whiffle-tree of the proper form and of proportionate size to sustain the greatest amount of strain when the smallest amount of material is used.

THE LENGTH OF WHIFFLE-TREES

Is a subject which is very imperfectly understood in order to be of any practical advantage. The longer a whiffle-tree is, the larger it must necessarily be at the middle, in order to be of equal strength throughout. Suppose, for example, a whiffle-tree of a given size at the middle is twenty inches long and just equal to the strength of a horse: now, if the length of that whiffle-tree be increased only half a foot, it will not endure the same strain at the middle—even if the size is the same—that it would before the length was increased.

In order to illustrate this subject so that a novice cannot fail to understand it, let a fork-handle be used as a whiffle-tree for one horse. Tie a rope around the handle, at the middle, and then hitch each trace with small cords to the handle, about five inches from the rope, at the middle on each side of it. That will be a whiffle-tree ten inches long, and will hold all the horse is able to draw. Now, slide the traces farther towards the ends of the handle, and, before they are as far apart as they should be when hitched to a whiffle-tree of proper length, it would break; and lengthen the traces so that they may be hitched at the ends of the handle, and *four* handles would not be equal to the strength of one as it was first hitched.

We all know very well that the size of a lever—handspike or crow-bar—must be increased, at the large end, in proportion to the length. It is precisely so with whiffle-trees; whatever the size and form of the ends may be, the size of the middle *must* be increased in proportion as the length is increased.

THE FORM OF WHIFFLE-TREES.

It is of little consequence what the forms of the *ends* of a whiffle-tree are—whether they are round or square—if they are properly ironed; but the form of the *middle* of a whiffle-tree is of very great importance. The joists of a house afford a very good illustration of the manner in which stress is sustained by a whiffle-tree. At the lower side of the joist—which answers to the hindmost side of the whiffle-tree—the tendency is to separate the grain of

the wood by pulling it apart; while, at the upper side of the joist, or forward side of the whiffle-tree, there is a *compressive* force in operation.

Now, then, as joists are curved downward, like a gambrel upside down, their strength is diminished; and therefore, as whiffle-trees are made gambrel-shaped, they are of a form to endure less stress than if they were entirely straight. For this reason, gambrel-shaped whiffle-trees—although sometimes more convenient than straight ones—are objectionable, because they must be larger and heavier at the middle than if they were straight.

Round whiffle-trees, when weight and size would be objectionable, are by no means the best form for even single whiffle-trees. When the middle of a whiffle-tree is round, there is much of it that is not in the right place to endure much stress; and, therefore, it becomes necessary to increase the size.

The *ends* of whiffle-trees, whether they are long or short, must necessarily be of the same size. If the timber is good, they need never be more than one and one-fourth inches in diameter, even for heavy work; and, for light ones, the ends need not be more than seven eighths, or one inch at most, in diameter, providing the irons encircle the ends.

As it would render them too inconvenient if whiffle-trees were made of a form to endure the greatest stress with the smallest amount of timber, we must adopt that form for the *middle* of whiffle-trees which will be convenient, and at the same time endure a good degree of stress.

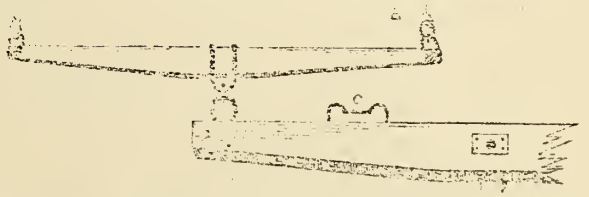
Now, if we make the ends of the single whiffle-trees one inch square or round for light, and one and one-fourth inches round or square for heavy ones, and of a proportionate size at the middle, they will not be readily broken. The middle of a whiffle-tree which is about thirty inches long—which is sufficiently long for most uses and too long for some purposes—should be not less than two inches wide and one inch thick at the middle in order to possess strength equal to the ends, if they are one inch in diameter. Should the ends be one and a fourth inches in diameter, and the whiffle-tree thirty inches long, the middle should be not less than two and a half inches wide, and nearly one inch and an eighth in thickness, to be of equal proportions.

Whiffle-trees are usually made straight on the forward side and tapering on the back side. Were the back side straight and the forward side tapering, they would be stronger than if they were placed with the straight side forward.

IRONING WHIFFLE-TREES.

Whiffle-trees should always be ironed in such a manner that the irons may be easily removed, and put on new ones, without the aid of a blacksmith; and, more than this, the irons, instead of being put through the wood, should pass around it, as boring through for only a small staple will weaken a whiffle-tree more than we are apt to make allowance for.

The accompanying illustration affords some very good ideas of the best and most convenient mode of ironing whiffle-trees. It will be seen that the iron at *A* is designed solely for receiving a cock-eye, while that at *B* will receive a cock-eye, or iron traces may be run through the ring. Either of the kind are far less liable to unhook than snake-head hooks, which is a very important consideration. The middle of the whiffle-tree is held by a double-clasp staple,



by which the entire strength of the whiffle-tree is retained.

It will be perceived, also, that all these irons may be taken off and put on other whiffle-trees without the aid of a cold-chisel or riveting-hammer. A staple at the middle of the double-tree is very convenient, many times, when a clevis could not be obtained.

At *C*, an extension-staple is shown, for the purpose of adjusting the single-trees, so that horses may travel on a wide or on a narrow track. It will, of course, be understood that, when the extension-staple is used, the double-tree must be a long one and the loops about six inches apart.

It is very convenient to have whiffle-trees, that are designed almost solely for a lumber-wagon, ironed off in this way, as, by having a neck-yoke ironed in this way, it is but a moment's work to alter the lines and whiffle-trees from a wide to a narrow track, and *vice versa*.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 46.)

THE kind of carriage used for traveling in the times of George I. and II. will be seen in Fig. 14. The form

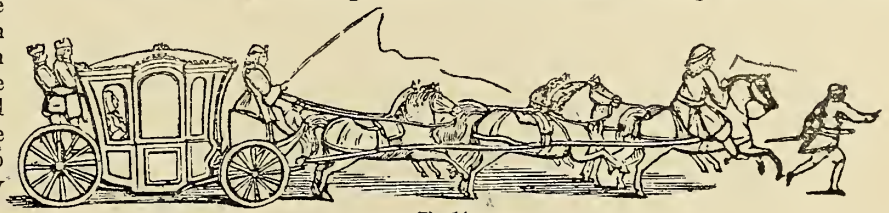


Fig. 14.

of the body is very much after the old pattern, with footmen, a coachman, and six horses, the foremost of which is ridden by a postillion, with heavy jack-boots and spurs, and has a footman running before carrying a gold-headed cane. These footmen, attendant upon the English aristocracy under pretence of clearing the way, are said to have been copied from Oriental usages. They were gaily attired in clothes of value; and an amusing tale is related of a smart chap who "come it over" the Duke of Queensbury by applying to him for a situation, and, having been supplied with a fine suit of clothes, he gave his unsuspecting Grace a fine specimen of his fitness for the situation he had assumed by running up Piccadilly until he fairly outstripped the horses and disappeared in the crowd with the garments he wore. This example is what is called "a coach and six," meaning a coach with six horses. The extra horses were added for show, and the attendant "footmen" were employed for the same purpose.

Though lighter, these coaches were an improvement over those which preceded them, but still very clumsy, and calculated to last a long time. In fact, some of these were, in the strictest sense, "heir-looms," remaining a long time in the family and kept in repair for use. The antiquary, Brown Willis, had one of these, which a cotemporary writer thus describes: "The chariot of Mr. Willis was so singular that from it he was himself called *the Old Chariot.* It was his wedding chariot, and had his arms on brass plates about it, not unlike a coffin painted black. Dr. Darrell humorously satirized it in one stanza, which runs thus:

"His car himself he did provide
To stand in double stead,
That it should carry him alive
And bury him when dead."

From a desire to introduce something of a lighter kind of vehicle, the *sedan cart* (Fig. 15) was invented, *capable of being drawn by a single horse*, although from a

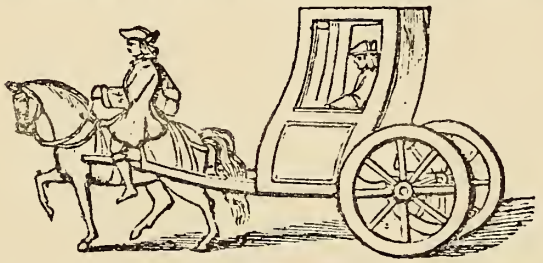


Fig. 15.

modern stand-point it would appear clumsy enough. This was intended for one person to ride in, but, at a time when crinoline did not spread itself quite as much as now-a-days, two might be got in by squeezing. The body, as may be seen, is of a peculiar shape, accommodated to a reclining position. This reclining position was originally obtained, as in Fig. 13, in hanging up the body; but in this example the workman has given the accommodation in his construction. Hung, without springs, on two wheels, placed as far as possible from the horse, and subject to his amblings, this cart must have proved a miserable *pleasure* vehicle. The driver had the best seat of all others, and, for an invalid, we judge a ride in the cart was certain death. They are said to have been used ordinarily by the middle classes only.

The roads at this period, in England, were still in a bad state, as appears from a work published in 1707, by the Rev. Mr. Brome, of Cheriton, Kent, entitled "Three Years' Travels in England, Scotland, and Wales." He says, "In Devonshire I found the roads so rucky and narrow that it was not possible for the farmers to use wagons; they therefore gathered in their corn on horses' backs." This state of things still encouraged the use of sedan chairs in the country, and rendered them very fashionable with the nobility and gentry even in London, where they were used in their visits to public places for amusement, or in making social visits among their friends. For these purposes they were in very general demand, although the great number produced much inconvenience in the crowded streets of cities, by the disputes for precedence, which were often of the most violent nature. An example of this kind may be found in "Mist's Journal," of Saturday, July 8, 1721, which shows that manners have changed somewhat within a century and a quarter. We read that, "on Thursday sen'night the Right Honorable the Lord Carteret, one of Her Majesty's principal Secretaries of State, passing through St. James's Square in a chair, was met by the Lady Harley in another, when, a dispute arising between the footmen about giving the way, they immediately came to blows, and, the chairmen and footmen being engaged with their poles and sticks, one of them struck his lordship as he was getting out of his chair, but whether accidentally or designedly we know not. In the meantime that person is committed to Newgate and three of his brethren are bound over to the next session."

A writer in the Tattler, an extract of which will be found on page 64, Volume Two, of this work, shows that at this time, and even earlier, the thoroughfares of London were crowded with vehicles, horses, servants, &c., to the annoyance of the traveler. He says, "The horses and slaves of the rich take up the whole street, while the peripatetics are very glad to watch an opportunity to whisk across a passage, very thankful that we are not run over for interrupting *the machine* that carries in it a person neither more handsome, wise, nor valiant, than the meanest of us."

In a preceding article (page 24) we have illustrated the sedan chair, from Sandy's Travels. This was quite fashionable for thirty years. It is related that Charles I., on his return from Spain, where he went on a courting *expedition* to the fair Princess, daughter of Philip IV., brought back with him three sedan chairs of very curious workmanship. Wilson says that, "when the Duke of Buckingham came to be carried in a sedan chair on men's shoulders, the clamor and noise of it was so extravagant that the people would rail on him in the streets, loathing that men should be brought to as servile a condition as the horses." This was in 1729.

A superior and greatly improved form of the sedan chair is given in Fig. 16. This was in use about 1750, and

Fig. 16.

is richly decorated with brass chasings, mouldings, carvings, and tassels. It is much lighter, too, than previously made, and much artistic taste is shown in the form of the body. It probably realizes the description of Dean Swift:

"Box'd in his chair, the beau impatient sits,
While spouts run clattering o'er the roof by fits,
And ever and anon, with frightful din,
The leather sounds—he trembles from within!"

The chair here depicted was for private use, furnished with crimson-velvet cushions and damask curtains, and the chairmen generally sturdy, athletic Milesians, reveling—where employed by the aristocracy—in all the finery of embroidered coats and epaulettes, and cocked hats and feathers. The public sedans were more of a democratic caste, trimmed with plain leather, secured by brass nails, as may be seen in Hogarth's plate of "The Rake's Progress," where he is represented as going to a levee at St. James's. "The hackney chairmen exerted the power of the strong arm, and were often daring enough, as a body, to influence the fate of Westminster and Middlesex elections in the terror which they produced with fist and

bludgeon. But they are gone. No Belinda now may be proud of 'two pages and a chair.' They glide not amongst the chariot-wheels at a levee or in a drawing-room; the club wants them not. They have retired to Bath and Oxford. We believe there is one chair still lingering about May Fair, but the chairmen must be starving, and the Society of Antiquarians ought to buy the relic." There is very little doubt that the bad state of the roads in the country, and the narrow streets of London, contributed to prolong the use of sedan chairs in England much longer than *their* conveniences would recommend them.

In figure 17 may be seen about the last type of the old-fashioned coach. After 1750 they were made after much lighter and greatly improved patterns, under various names, and seem to have, in this respect, rivaled France.

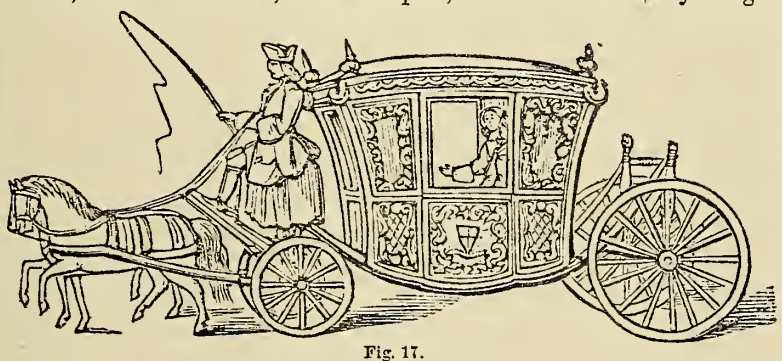


Fig. 17.

That which strikes the eye, in this engraving, is the profuse and elaborate carving to the panels and quarters of the body. It also appears to have been hung without a perch, very low to the ground, forbidding the necessity for steps in getting in. The hammer-cloth seat still maintains its dignity, and although the footmen are absent, yet the construction of the carriage shows that they "were around" *somewhere*.

The following description, from the "Tales of an Antiquary," will give the reader some idea of stage-coaches as they existed in England in 1755. The author says:

"In my own young days, stage-coaches were constructed principally of a dull black leather, thickly studded, by way of ornament, with black, broad-headed nails, tracing out the panels, in the upper tier of which were four oval windows, with heavy, red, wooden frames, or leather curtains. Upon the doors, also, were displayed, in large characters, the names of the places where the coach started and whither it went, stated in quaint and antique language. The vehicles themselves varied in shape. Sometimes they were like a distiller's vat, somewhat flattened, and hung equally balanced between the immense front and back springs. In other instances, they resembled a violoncello-case, which was, past all comparison, the most fashionable form; and then they hung in a more genteel posture, namely, inclining on the back springs, and giving to those who sat within the appearance of a stiff Guy Fawkes uneasily seated. The roofs of the coaches, in most cases, rose in a swelling curve, which was sometimes surrounded by a high iron guard. The coachman, and the guard, who always held his carbine, ready cocked, upon his knee, then sat together, not, as at present, upon a close, compact, varnished seat, but over a very long and narrow boot, which passed under a large spreading hammer-cloth, hanging down on all sides, and finished with a flowing and most luxuriant fringe. Behind the coach was an immense basket, stretching far and wide beyond the body, to which it was attached by long iron bars or supports, passing beneath it, though even these seemed scarcely equal to the enormous weights with which they were frequently loaded. These baskets were, however, never great favorites, although their difference of price caused them to be frequently well filled."

The wheels of these old carriages were large, massive, ill-formed, and usually of a red color, and the three horses that were affixed to the whole machine—the foremost of which was helped onward by carrying a huge, long-legged elf of a postillion, dressed in a cocked hat, with a large green and gold riding-coat—were all so far parted from it by the great length of their traces that it was with no little difficulty that the poor animals dragged their unwieldly burden along the road. It groaned and creaked at every fresh tug which they gave it, as a ship, rocking or beating up through a heavy sea, strains all her timbers with a low, moaning sound, as she drives over the contending waves.

The first post-chaise built in England is said to have been constructed in Queen Street, Lincoln's Inn, in a building where the same business is, or was until recently, carried on. It had but two wheels, and was open in front. One writer describes it as having very much the appearance of a bathing-tub.

It was some time before stage-coach traveling was performed at night, the practice of which probably suggested the necessity of a guard, because of danger from robbers. Fielding, in his "Joseph Andrews," represents his hero as having been robbed and left for dead by foot-pads, in the night, and afterwards, "just as he began to recover his senses, a stage-coach came by. The postillion, hearing a man's groans, stopped his horses, and told the coachman."

M. Grosley, a French traveler, who visited England in 1765, entertains us with the following account of his journey from Dover to London, which serves to illustrate our subject at the period: "The great multitude of passengers with which Dover was crowded afforded a reason for dispensing with a law of the police by which public carriages in England are forbidden to travel on a Sunday. I myself set out on Sunday, with seven more passengers, in two carriages, called 'flying machines.' These vehicles, which were drawn by six horses, go twenty-eight leagues in a day, from Dover to London, for a single guinea. Servants are entitled to a place for half that money, either behind the coach, or upon the coach-box, which has three places. The coachmen, who were changed every time with our horses, were lusty, well-made men, dressed in good cloth. When they set off, or were for animating their horses, I heard a sort of periodical noise, resembling that of a stick striking against the nave of the fore-wheel. I have since discovered that it is customary with the English coachmen to give their horses the signal for setting off by making this noise, and by beating their stools with their feet in cadence; they likewise use the same signal to make them mend their pace. The coach-whip, which is nothing else but a long piece of whalebone, covered with hair, and with a small cord at the end of it, is no more in their hands than the fan is in winter in the hands of a lady; it only

serves them to make a show, as their horses scarce ever feel it."

The "flying-coach" alluded to above as a "flying-machine" is said, in the Diary of Anthony Wood, to have completed the journey between Oxford and London in thirteen hours, which is certain evidence that the improved roads and improved vehicles were all contributing to render traveling more expeditious and pleasant. Still there were those whose prejudices or interests concocted serious charges against their use. One was, that they were very liable to overturn, and endanger the life of the passenger. In the "Gentleman's Magazine," for 1771, we find a correspondent stating the cause of these accidents, and suggesting remedies. He says that the bodies are suspended too high from the ground, and too heavily laden with passengers on the roof. He wishes that carrying passengers on the top could be strictly forbidden, but is apprehensive that, though it were, the ambition of coach-owners would raise the inside fares so high that it would prevent many from riding in coaches. Another cause is ascribed to the excessive roundness of "turnpike-roads," which was frequently so great that one coach could not pass another without great danger of upsetting. This "reformer" suggests, as one remedy, that it should be made imperative on coach-proprietors to have their axle-trees made longer, so as to track five feet eight inches, instead of four feet eight. This improvement would not only render the coach less liable to overturn, but allow of the body being made larger, so as to contain six passengers. This would lessen the price of an inside seat, and traveling, in consequence, become cheaper.

What effect our speculator—for he evidently was not a coach-maker—may have had, may be inferred from the following information, derived from the "Annual Register" for 1775. We are told that "the stage-coaches of the day generally drive with eight inside and often ten outside passengers each." It is there stated that there were upwards of four hundred of the coaches included in the terms flys, machines, and diligences; "and of other four-wheeled carriages, seventeen thousand."

THE NATURE AND ECONOMY OF DRAUGHT.

SECTION III.

The use of wheels in the draught of carriages is twofold: first, that of reducing the resistance arising from the friction of the carriage; and, secondly, they enable the carriage the more readily to surmount such obstacles as may be on the plane over which it is drawn, and which must either be depressed by the weight of the carriage, or over which the carriage must with its load be lifted. For want of proper discrimination between these two purposes, it is that the contending advocates for high and low wheels appear both to be right. The obvious use of wheels is first to overcome friction by transferring the rubbing from the under surface of the carriage and the supporting plane to the surfaces of the axles and box in the wheel, the box rolling round the axle somewhat in the manner in which the wheel rolls over the road. But though a rolling body may be more easily drawn over a surface than a sliding one, its friction is lessened only; and though the resistance made to the drawing power is more easily overcome, the friction is yet proportional to the weights or pressure of the whole.

But it is clear that if the wheel was laid on its side, the felloes and nave being supported by a flat plane, and so turned round its axis, the lateral surface of the nave would rub less against the plane than the lateral surface of the felloes, and in proportion to the swiftness of its lateral motion. But lift the wheel on its edge, and let it turn on the axle as in rolling along the road, and the friction is transferred from the rim to the axle and box in the wheel, whose circular motion is so much slower. As the internal surface does not roll under the bearing of the axle exactly in the same manner as the external surface of the tire rolls over the road, the motion of the inner surface of the box is not equal all round with that of the wheel, nor of less velocity in proportion to the difference of such inner surface and the rim.

But as the axle is carried along in a right line while the wheel revolves round it, the motion of every point in the outer surface describes a cycloid, and that of every point of the inner surface an arch more or less cycloidal as it is distant from the rim; at the same time, the line described on the supporting plane by the whole rim is exactly equal to that of the rim, and to the right line described by the center of the axle in the direction of the draught, so that it is plain the local motion of the nave is equal to that of the felloes of the wheel.

Now, is the resistance of friction diminished, from a want of velocity in the motion of the inner surface of the box, when it is evident the inner surface of the box has rubbed against the axle as much as the axle or bed of the carriage would have rubbed against the road had the wheel been taken away, or as the wheel would have done had it not turned on the axle?

Or can it be asserted that the friction at the axle is diminished as the velocity of the circular motion is lessened? This is the true state of the case. The nave must turn round as much slower than the rim as its circumference is less, and the weight of the axis must press proportionally longer within a determinate space against the inner surface of the nave than it does within the same against the outer surface of the wheel. Thus the weight bearing longer on each point of the inner surface of the nave, in proportion as its length is less, the rubbing of the whole is equal to what it would be if the periphery of the nave were equal to the line of progression, supposing there were no wheel at all. The advantage of high over low wheels is thus shown. The following experiment was tried to show that practice agreed with theory:

A wheel of seven inches, diameter, loaded with twenty pounds, required eight pounds to draw it over an obstacle one quarter of an inch high; whereas, when a wheel of twenty-eight inches was employed, the same load was drawn over the same obstacle by a draught equal to four pounds,—in both cases the wheels being drawn by a chord at right angles to a line drawn from the center of the wheel to the top of the obstacle.

Street Railways in England.—City passenger railways, which were greatly opposed at first in England, are now becoming quite popular. The two tracks—only about two miles long—laid down by Mr. Train, in London, have been very successful. No less than 170,000 persons were carried over them in seven weeks. The Board of Trade has made a very favorable report upon them, and two other roads, of greater length, are now being constructed in the British metropolis.

Home Circle.

For the New York Coach-maker's Magazine.

THE GRAVE OF A LOVED ONE.

BY A LADY CORRESPONDENT.

We hollow graves, when our loved ones die,
Where the light of heaven is shining;
The marble, marking where they lie,
With sweetest roses twining.

To us each grave is sacred, where
We love that all should linger;
The unkindest foe we have would there
Lift no destroying finger.

But when we've seen *them* drop away,
The brightest hopes we've cherished
In youth, or life's maturer day,—
Oh! when *they* all have perished,

We hide them away, nor leave a trace,—
No flowers on their grave bestowing;
Above them we set no stone,—the place,
Or time of their burial showing.

We may not weep, though tears would bring
Relief to the heart nigh broken;
We stifle the sigh, we smile and sing,
Nor give of our grief a token.

For the New York Coach-maker's Magazine.

PRINCIPLES, NOT MEN.

BY MISS HATTIE L. DOLSON, MIDDLETOWN, N. Y.

THAT "it is the age which forms the man, not the man that forms the age," is a sentiment which, although generally acknowledged, is often forgotten. It detracts from man's self-importance to realize that he is but the instrument, not the creator; that "it is not in man that walketh to direct his steps;" and that his superiority over his fellow-man is only relative, not absolute. As, before a storm, those plants which are most sensitive to a change of atmosphere first indicate its coming, so the most delicately organized mind detects the truth a little before it is made manifest to the multitude. If Washington had never lived, the heroes of the revolution would not have been without a leader; or, if Newton had been born in the ninth century, his name would not have been rendered immortal by the discovery of those natural laws which are now so inseparably connected with it. Without Plato or Aristotle, the Greeks would have had essentially the same systems of philosophy. And it is evident that the fifteenth century, which is now so conspicuous for its many important discoveries and inventions, could not have passed without the "open sesame" to the mysteries of nature being uttered by some one.

Although this presumption lessens our importance as individuals, yet it gives a dignity to our actions, words, history, philosophy, art, and science. Useful inventions require many ages, and the life-work of many individuals, in attaining to a perfect development of their principles and application. Every true and noble sentiment will at last find its own place in the heart of nations. Our history is no mere chronological chart; the importance of the victory and defeat of armies is not alone measured by the numbers of killed and wounded; but thereby we are enabled to determine essential and immutable principles. Philosophy, art, and science, all have for their highest object and aim the development of the truth. By each and all of these the unchanged and unchangeable principles of God are made known to us, and they define the highest object of human life and knowledge—a fuller conception of the Deity.

All apparent inconsistencies in nature are reconciled, all the problems of life are solved, when we remember and realize that "the Creator has designed not the preservation of individuals, but of man, in the ground-plan of the universe." The annals of history, from the earliest ages, fully attest this. Armies have perished in defense of their country, their homes, their liberty. Martyrs have willingly laid down their lives that the grand principles which they maintained might live. Among the heathen only a less devotion to principles has been observed. Socrates drank the cup of hemlock without trepidation; a Roman hero held his hand in the flames until it was consumed, forgetful of all things else in a higher and a nobler idea.

Not only does history attest this, but we read it every day in nature and the life around us. Blossoms come forth to be blighted; the delicate flower that blooms by the wayside is crushed by the hasty steps of the traveler; the oak that has been the monarch of the forest for ages is uprooted by the storm; and millions of the human race are prematurely swept away by "war, and the thousand ills that flesh is heir to."

As in the rough block of marble, in which we can see no beauty, the sculptor discovers an unembodied loveliness, and will labor for years to perfect this idea, removing vail after vail from the object of his faith, until his beautiful conception stands forth in all the grandeur of symmetry and simplicity,—thus, throughout all generations, is the Creator developing the grand proportions and loveliness of truth.

The eternal principles are fixed and unchangeable. Man's wants, willfulness, or wisdom, cannot affect them; they are like the ocean, with its resistless tide; "ten thousand fleets sweep over it in vain." Thus the Bible is as true and fresh to us to-day as it was to the Israelites two thousand years ago. The heroic poems of Homer awaken emotions in us of much the same nature as those they aroused in the ancient Greeks. And Shakspeare's immortality rests on the same fact.

A true principle can never die; although those who have maintained it pass away and are forgotten, it will always live; sometimes it may be in the cell of a hermit, sometimes defended by a "band of pilgrims," yet God will ever watch over, protect and preserve it, as He did the Ark of the Covenant through all the journeyings of the children of Israel. "Heaven and earth may pass away, but my word shall not pass away."

The history of man has been a progressive one from the earliest ages until the present time. Each succeeding generation, standing on the vantage ground won for it by the preceding, clears away new obstacles that lie in the paths of light and knowledge. It is on this supposition that we are willing to begin our labors where others have left them, and to receive that as the truth which has once been demonstrated to be true. The folly of doing otherwise has been exemplified by the life of Descartes; his example will serve to show us that, to ignore all previous learning, and to strike out for ourselves a path perfectly

new and original, is useless, and sweeps us back to the half-hid landmarks of time.

The foundation of this grand temple of learning and knowledge, which is still unfinished, was laid centuries ago. The Bible is the corner-stone; and all poets, authors, and great men who have lived since the earth was created, have aided in forming this structure; and all who shall yet live will give to it new grace, dignity, and harmony of proportions, and their names will serve to embellish and adorn it, until its radiance shall fill the whole earth, and its spire shall reach the skies. For it shall be a temple "not made with hands, eternal in the heavens." It even now exists, but our darkened eyes see it not.

Ages ago, the hearts of the shepherds on the plains of Bethlehem were stirred by the triumphant strains of the angel bands, as they sang "Glory to God in the highest, and on earth peace, good will towards men." The subject of my composition causes me to listen for the echoes of those strains, from the grand organ of this invisible temple; for the vibrations of these eternal principles make the harmonies of heaven. Men shall live and die, the laurel-wreath shall bloom and wither, nations spring up and pass away; but still, peculiar to itself, like the murmur of a sea-shell, that ever whispers to us of the home from whence it came, shall those vibrations become more marked and musical, suggesting to man thoughts of heaven, till the whole world shall respond to the angelic strains.

Pen Illustrations of the Drafts.

For the New York Coach-maker's Magazine.

SWAN SLEIGH.

Illustrated on Plate XIII.

But little is needed by way of description. It does not differ from other sleighs except in the body. It will be seen that it is a two-seated sleigh,—the front seat between the wings of the swans. The sides look well plain, and painted to imitate the feathers, but will show better carved; the body, back of the swan, should be of a different color, striped and ornamented. Designed by F. W. Bacon.

DICKEY-SEAT DOUBLE SLEIGH.

Illustrated on Plate XIV.

The drawing for this sleigh was furnished to us by the same firm as the one given on Plate XII., Vol. III., and described on p. 68. There being very little difference, the remark there made will supply all the necessary information. The track of the runners should be about 3 ft. 4 in. Paint the running part vermilon, the panels lake, and the arm and belt pieces dark green, or black, as suits the taste. The usual price of these sleighs is from $200 to $300.

SCROLL CUTTER AND FANCY SLEIGH.

Illustrated on Plate XV.

The first figure is from Mr. F. W. Bacon, of Ohio. The following are his remarks in relation to it: "The scrolls should be of round iron, and the braces oval. The beams extend about 1½ inches from the body, and are carved; an iron scroll is attached thereto, taking an easy drop, and supporting the fender. Oval braces are bolted to the runner at *e*, *e*, extending to the centers of the second and third beams. If thought strong enough without the scroll-iron, *s*, at the back, that portion may be omitted altogether. The draw-rods are attached to the ends of the front serolls, as shown in the engraving. This cutter is a perfect combination of curves and circles. Notice the space between the dash and arm; it is almost a perfect circle."

The second design is of Freneh origin, and taken from our worthy cotemporary M. Guillon's publication at Paris. The stub-runners are bent something after the model advocated by a correspondent on page 182 of Volume Three, to which the reader is referred. The body, with imitation shell-work, very much relieves it; and the carved runners and scroll-irons altogether make a very original and pretty sleigh. Those who are in possession of our Third Volume would do well to read Mr. Todd's article on page 181, and those who are not so fortunate had better send to us for it before making up sleighs for the winter, as there is much practical information there, on the principles of draught in the manufacture of sleighs, traverse sleighs, &c.

DESIGNS FOR CARRIAGE-PART CARVING.

Illustrated on plate XVI.

Figure 1 is a design for the spring-bar.

Figure 3 is for the axle bed.

Figures 2 and 4 are intended for scrolls to head-blocks.

Sparks from the Anbil.

THE YORKSHIRE IRON WORKS.

THE BOWLING WORKS.

I cannot probably give a more intelligible account of the iron manufacture of this district by describing the Bowling Works, than by dealing in generalities. In nearly all respects they are a counterpart of other works in this small district. Here are six blast furnaces, having staeks forty-six feet high, with boshes nine and eleven feet diameter. The blast is not heated, which issues a much better quality of metal, though a much less yield is obtained. About seventy-five tons from each furnace is the weekly product. For fuel, all coke is used, which is prepared near the furnaces, one half in closed kilns and the other in exposed beds, the coal yielding approximately sixty-six per cent. There is rather more loss by exposing the eoking process, but a purer product is obtained. To reduce the calcined ore, thirty hundred weight of coke are required for a ton of iron. The ore yields, as ascertained by the consumption for a long series of days, in its raw state, 30.95 per cent. of iron; in its calcined, 42.9 per cent., which is quite equal to the best of our argillaceous

carbonates, and considerably exceeds the greater part of the "clay bands" of Great Britain, some of which yield as low as 20 per cent., but such are not used alone. The burning of the ore, which is generally done in heaps elsewhere, is here more thoroughly effected in kilns. The kilns are about twenty feet in height, and in rows, with a tramway running over and between them, so that the ore and fuel are discharged from the cars without re-handling, as they arrive from the mines. The lower openings from the ore and the coke kilns are on a level with the tunnel-heads of the furnaces; as are also the beds of coke prepared in the open air.

About forty-nine pits are kept in working order to supply these six furnaces and the refining, puddling and reheating fires; and these are connected to the works by over forty miles of railway, on which locomotives are used for draught. The worked seam of ore averages about thirty inches in thickness, but contains more or less shale, and yields on an average three thousand five hundred tons per acre. The coal-seams average about twenty-four inches.

With this description the working of the furnaces may be understood, and we will pass to a description of the refining processes.

REFINING OF YORKSHIRE COLD BLAST IRON.

We here start with pig iron, already much superior in purity to those varieties we have described before in this series of letters. It is not only made from a purer ore and coal, but with a cold blast, that does not impart to the iron certain impurities, the nature of which has not been ascertained to our entire satisfaction, but is probably owing to a proportion of sulphur, and possibly silica. This pig metal, however, is run through refining fires—which consists in melting the pigs with coke, and running the metal into open cast-iron moulds, and when the whole casting is out it is chilled yet further by a stream of water. Of these refining fires there are five, of unusually large size, in which forty hundred weight are melted at a time during the day, and fifty hundred at the last heat. It is here broken by the men with heavy sledge-hammers, then weighed into pareels for puddling, and wheeled to the furnaces.

Small iron trimmings are thrown into furnaces to facilitate the balling process, as it also serves to retain a larger proportion of carbon in the iron, and gives it somewhat of the nature of steel. Blooms or balls are made, weighing very little, if any, more than one hundred pounds each, and are well compressed before leaving the furnace. Vertical steel hammers are used for shingling, of which there are three for this purpose. The balls are more carefully and thoroughly cleaned than I have seen in any other district in Great Britain, beginning with light, and finishing with rapid and heavy blows, and compressing the blooms into thin slabs—about one and a half to two inches in thickness, and nearly square. These slabs are allowed to get cold, and are then broken into six pieces of nearly uniform size. An upright fall, worked by power, is used for breaking, the operation being done quite rapidly, only one machine being used in the works. After this the fragments, which are nearly square, are piled with covers for reheating, and, when heated properly, are rolled into bars for refining again, which is successively done from four to six times. Other qualities of pig will not bear this succession of refining without causing more loss; and when refined will yet have more or less of the original properties of the pig metal. Even when red shortness is rectified to a considerable extent by union with cold short iron, the product has not the tenacity of a metal which is originally free from those curious properties. At these works, the locomotive tyres have a fracture showing a crystalization very similar to steel, though it is not called such; and its strength is fully equal to the best of puddled steel, while in uniform homogeneity it far excels.

PUDDLED STEEL.

When puddled steel shall be made from the purest of pig iron, and will allow of being refined by successive re-rolling without losing its nature in part or whole, and admit of uniform results through this series of refining, *then* we shall have puddled steel which will be what many men are now supposed to believe it to be—reliable. It seems probable that for some purposes the puddled steel will answer the best of purposes, but where there is liability to an irregular expansion and contraction, as of sheets, it is a question whether flaws and fractures will not develop weakness which iron could not be likely to show. I hope to enter into this subject more fully under the head of steel manufacture, and if I am wrong in my judgment of this and other new processes, no doubt practical men will be able to show me evidences of my error.

These animadversions are properly introduced in this place, because they serve to illustrate my earnest impressions, if not the fact, that neither good iron nor good steel can by any possible means be made from ores that are not originally good—that have neither red nor cold short giving qualities; and further, from ores that do not possess those elements which serve to thoroughly flux the iron in its successive purifications. What these elements are we cannot always determine. As for other essential provisions in producing reliable steel in the puddling furnace, they may be discussed in another connection.

THE PUDDLING FURNACES.

We return to the description of the Bowling Works. Twenty-eight puddling furnaces are used, each yielding about twenty-nine hundred weight of iron to the turn. In rolling, the forms were not reduced so rapidly as I have usually seen. In the heating of the piles of iron, it appeared to me that more than usual care was taken in the use of welding loam. For boiler plates the slabs are dressed by helved hammers. For tyres, axles, and special work, six steam hammers are used, one of which is seven tons in weight, the same as the large one at the Reading Forge, Pennsylvania. Bars and rods that are rolled to medium and small sizes have an exceedingly fine fibrous texture; and they admit of twisting into knots and other various close bendings while the iron is cold, without fracture. Products of the mills of this district return an average of £25 sterling per ton, or more than double the average yield of mills producing ordinary "best" refined bars and rods. Boiler plates thirty-four feet in length, have been rolled for government use. Connected with these works are various shops, for forging, casting, and machine and boiler-making.

BRITISH AND AMERICAN IRON.

At Bowling I was shown some specimens of iron ore from the north of Ireland. One is a brown hematite, similar in structure and fracture to the "pipe-stem" ore of the Juniata district, Pennsylvania. It is supposed to be very pure, and likely to produce a quality of iron like that

of Juniata. A furnace is about to be put upon smelting this variety, the ore to be imported from Ireland. Another specimen from the same vicinity is a magnetic variety which shows its transition character, evidently having been brown hematite at some former period. It is analogous to an ore found near Christiansburg, Montgomery county, Virginia.

Lest silence respecting the best qualities of iron made in the United States should be construed into a disposition to ignore their prediction, or to cast an inflection that the elements are not in existence, I would simply say at this time, that we certainly have the elements, probably in greater variety than any other country on the face of the globe; that we have all the talent that is essential for management and manipulation, and that the market is almost unlimited in extent, if looked after with reasonable tact. As our mechanical and civil engineers become better acquainted with the diverse and special qualities of iron, will they allow much better prices for that which they partieularly need. Present expediency, and as well, also, indifferenee, have made iron masters disregard the special valuable properties that belong to the best that they are able to make. In this respect rolling-mill managers are as much at fault as blast-furnace proprietors. The interesting features of American iron, that correspond in part or whole to the Yorkshire cold blast product, would require a letter by itself.—*Post.*

Paint Room.

For the New York Coach-maker's Magazine.

HOW TO PAINT A CARRIAGE.

A SUITABLE place to do work in is an important consideration in painting, but as workmen will have opinions of their own about making things convenient in their own particular cases, I will not take time to go into details about conveniences in constructing shops or paint rooms; only this I will say to the uninitiated: you must have a room where you can exclude dust entirely, and you must have means for ventilating the room whenever you wish; these qualifications are indispensable.

The first thing that presents itself is the mode of preparing the oil used in painting, and, as this is a disputed point, and in our opinion a very important one, I will give such reasons for my opinion as have been gathered from thirty years practical experience in the trade. Those who learned their trade thirty years ago were taught to use boiled oil in carriage painting, and we are not apt to forsake our early teachings without convincing proofs of their fallacy. I have, by experience, been driven from my good opinion of boiled oil in almost every department of painting. Its supposed advantages are that it dries quicker and flows over the surface of the wood better than raw oil. Its positive disadvantages are that it is more brittle when dry; if bruised, will break from the wood, and unless the utmost pains is taken to get it thoroughly dry, the varnish that is put over it will crack after it has been exposed to the sun. We are deceived about its drying quicker, and that is the cause of paint and varnish cracking. Boiled oil gets its drying quality from the oxygen which it imbibes by heating, and the oxyds of lead which are put into it while boiling. There is no visible part of the lead used for dryer left in the oil when it is ready for use, therefore I suppose the oxyd which it absorbs from the lead is the dryer—be that as it may, there is one thing certain, we know oil so prepared will not dry unless it comes in contact with the air. Corked in a bottle, it will never dry, and this is one great difficulty in using boiled oil. Suppose we have painted a piece of wood with one coat and got it thoroughly dry; the air, oil, or turpentine cannot go through the coat of paint when the second coat is applied. The part of the second coat which is exposed to the air dries on the outside, forming a skin which prevents the air from getting to the drying quality of the inner part, and shuts it up almost as close as if it were corked up. The air being so penetrating will, after a long time, get to it and dry it; but it takes a long time, unless the paint with which it is mixed can impart to it a drying quality independent of the atmosphere. Painters who use boiled oil obviate this difficulty by mixing a large proportion of turpentine with the oil or paint, making what they call a dead coat—this, when the turpentine has evaporated, dries without a gloss, and leaves the paint open like a sponge, so that the air can get to the oil. Experience proves this to be the poorest kind of paint to last—if jammed, it breaks off clear to the wood; if left to time, it comes off very soon in small scales—yet there is a great quantity of work done so, because they can rub the paint down smooth with sandpaper easier than if it were of a tougher material. Before I get through, I hope to show that the paint can be made smoother and as tough as you wish without using much sandpaper, and with less labor. Boiled oil will not bear much japan for a dryer. If too much is used the paint comes off in large scales, and leaves the carriage in the very worst condition for repainting.

Raw oil dries with less gloss, leaving a chance for the air to penetrate the paint as well as the dead color, and, aside from that, the dryer used in the paint dries more independent of the action of the atmosphere. For instance, I have seen red lead ground in oil and soldered up in tin cans so as to entirely exclude the air, and in one year the paint would become a hard cement; boiled oil, under the same circumstances, would never dry without the red lead.

A ship painter will never use boiled oil about any part of the vessel that is exposed to jamming by the dock, because the paint will break off clean to the wood. For these reasons I should use raw in preference to boiled oil, with but very few eases excepted.

To prepare raw oil for use, it will be necessary to add one-fifth part of good brown japan to four of oil. If paint requires any further dryer, equal parts of sugar of lead and white vitriol ground together can be used, to the amount of one ounce to the pound of paint, or the same amount of patent dryer.

For the priming coat of a carriage-gearing and body, use the same kind of paint, to wit: white lead mixed in the above prepared raw oil, and about one-eighth part turpentine, with a shade of lampblack, if your carriage is to be a dark color. When the wood-work of a carriage comes into the shop, examine it closely, and if the grain has raised in any place, or it wants smoothing with sandpaper, be sure and do it before you prime the work, then dust it off and put on the priming coat even, and be sure to have the paint go into the cracks, checks, or screw-heads, so that they have at least one coat of paint over the surface which is to be puttied up.

The carriage-part wants but one coat before it is ironed, but the body you will retain in the shop while the gearing is being ironed. After it has had four days' drying, and has been sandpapered off, give another coat of the same kind of paint with a little dryer, and about one fourth as much turpentine as oil.

The object now is to get a perfectly even surface on the work of the body, which cannot be done on the bare wood, on account of the grain of the timber. For this purpose a heavy coat of coarse paint, prepared so that it will dry as hard as a bone, is put on, and, after it is dry, is rubbed with a flat surface of pumice-stone in water, which rubs the paint off from the ridges down even with the hollows, thereby making the surface level and smooth. To facilitate this operation I have adopted something different from the old way, which is better and easier. I have some fine-grained sole leather cut into pieces so that I can have three different ones, with a straight-edge of from one to three inches in width; these edges are made rounding and smooth with sandpaper.

After the turpentine has evaporated from this second coat which we have put on, and before it is dry, I take one of these leathers in my fingers very much as I would a scraper, and draw the edge over the soft paint. This crowds the paint from off the ridges down into the hollows, and levels it quicker and better than two coats of "rough-stuff" will. The parts which are not going to be rough-stuffed, such as the spindles to the seat, or any such small place, I rub over with my hand and fingers, so that I get the paint crowded into the grains of the wood, and all the brush marks are removed. After repeating this process the second time on the seat and part which is not to be rough-stuffed, it will be ready for putting on the color. I make my putty of whiting and good drying varnish; and when the paint has got dry on the body, the screw-heads, and other places where the rough-stuffing is to be put on, should be filled up more than level, and the surplus will be cut off with the rough-stuff. H. H.

(To be continued.)

For the New York Coach-maker's Magazine.

LESSONS IN PRACTICAL COACH-PAINTING.

BY F. W. BACON.

(Continued from Volume Three.)

LESSON V.—HINTS ON STRIPING, FINE LINING, ETC.

BEFORE beginning a job of striping it is necessary that every part should be smooth and clean; then, if after trying, you find your color is apt to crawl, the difficulty may be obviated by rubbing gently the parts to be striped with a cloth dampened with turpentine, or by using the palm of the hand alone.

Mix your striping colors, finely ground (tube colors are the best), quite thin, with raw oil and turpentine, the oil predominating, for fine lining, with a little dryer. Many wise things have been said in regard to the best kind of striping tools for use. Some painters denounce sables for any purpose, and say there is nothing equal to the good old camel hair; while others say, with as much emphasis, that no man can make a perfectly clean, straight line with anything but a sable. To such, I would say, try this suggestion: If you wish to make straight lines or large curves, use a sable; but if there are to be short turns and small circles, use the "good old camel hair," by all means. In either case, see that the hairs are all of a length and size, soft at the ends, and no "twisters" or "stragglers."

If, in the course of your work, your pencil becomes clogged and gummy, draw it gently between the thumb and fingers, and dip it in oil; be very sure that it does not come in contact with the finger nails, as that would cause the hair to curl and spoil the pencil.

In fine lining it is generally good taste to use a color that contrasts strongly with the ground color, but as a general rule, do not use any more than one color on a carriage part, and if the body is all of the same color as the carriage, stripe it with the same color used on the carriage. If there are different colored panels on the body, then of course the colors of lining may be varied.

The above remarks refer mainly to fine lining for buggies, phaetons, &c. On common or heavier work the style is somewhat different. For instance, on lumber work, market wagons, coaches, &c., broader stripes are put on, and more turpentine is used to prevent its running. A very tasty piece of striping may be done with color that is only a different *shade* from the ground color. For example, take a sleigh body, use the same color that was used for painting the body, and heighten it with white, and run a broad stripe around the panel; then run another about one fourth the width beneath and joining it, using color darker than the body; then a fine, white line on the upper edge of the whole, and if neatly done, you will see a moulding "stand out" *a la fresco.* In all striping and ornamenting on a piece of work, try to preserve the same style throughout. Do not commence with square panels and then put in pointed work and "*gingerbread.*" Remember that it is not the amount of work, but the amount of taste and judgment that makes the finish. In the next lesson I shall call your attention to the subject of gilding and ornamenting.

Trimming Room.

USEFUL INSTRUMENT IN MAKING OVALS.

IN trimming carriages it is frequently necessary to have some plan by which, for stitching purposes, a perfect oval may be obtained. To supply this need, we have, in our first volume, presented a variety of diagrams, by following which ovals of different forms can be made. These, however, are all more or less complex, and will require some exercise of mathematical talent in order to perfect them. The more simple way has been that of striking them by string and pencil, an example of which will be found illustrated on page 173, Volume One, of this work. For the plan which follows we are indebted to our friend, Mr. C. Gobright, at Messrs. Burr, Haight & O'Connell's, Baltimore, Md., who has kindly allowed us to publish it for the free use and benefit of the subscribers to THE NEW YORK COACH-MAKER'S MAGAZINE.

That the diagram may be perfectly understood, we will now go on and explain Fig. 1 in detail. Having provided two strips of hard wood—say white ash—long enough to extend the entire length of the oval required,

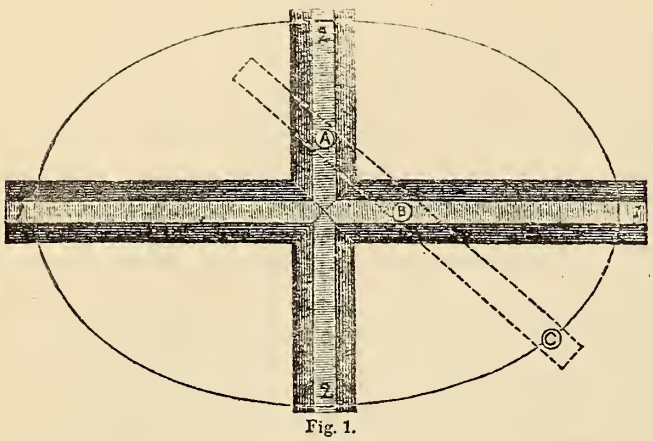


Fig. 1.

about $\frac{5}{8}$ of an inch wide and $\frac{3}{8}$ inch in thickness; then frame them together at right angles in the form of a cross, as shown in the engraving, which is drawn on a scale half-inch to the foot. Next, plow a groove through the centers with a "rutter," as indicated by the tinted lines 1 1 and 2 2, taking care to make those grooves wide enough to receive the pins A and B,—the position of which is represented in the diagram above, but more plainly shown in Fig. 2,—while, at the same time, you must use care so as not to go too deep with the grooves, lest the frame break asunder; it being obvious that enough wood should be left at the bottom of the grooves to hold the parts together, for practical purposes. We would remark *en passant*, that, if desirable, the cross-pieces can be arranged to come apart when not in use, so as to be convenient for transportation in a trunk, while traveling, and that the dotted lines are supposed to represent Fig. 2 in position for beginning to form the oval, the pins being placed at A and B, and the pencil at C, as seen in the diagram.

Fig. 2 represents another portion of this machine for taking ovals. Through a suitable stick, or handle, of wood, suppose we bore two holes for the pins A and B, and a third one, for the pencil, at C, which last,

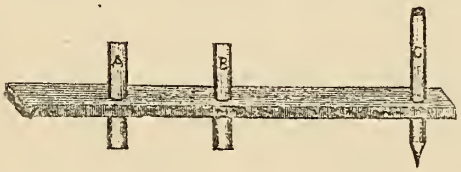


Fig. 2.

remaining stationary, must be *the point* from which *the position* of the pins A and B are to be determined and placed upon the handle. Now, suppose, for instance, we want an oval twelve inches long and six inches wide; we must then place the pin A half the distance (6 inches) from the pencil, C—this gives the length; and then, again, we must place the pin B from the pencil three inches—half the width for the breadth. The handle must be long enough to carry out the same rule, to produce any sized oval, both as regards length and breadth.

The above rule having been strictly observed—accommodated to the size of the oval—the pins A and B guiding and the pencil, C, marking at the same time, we with the hand will now move Fig. 2 in regular order around the the frame in which the groove is formed, in the grooves, as represented in Fig. 1. *The change in the pins, relatively to the pencil, will determine all shapes to the oval.* In other words, the nearer the pins are placed to the pencil, the shorter will be the oval, and *vice versa*. When the pins A and B are nearer together or farther apart *from each other*, differently shaped ovals are made. Of course, as placed on Fig. 1, and carried either to the right or left, only one quarter of the oval will be formed—since A or B must reach the center in moving—but this process being repeated on the four angles of the cross, will in time complete the oval. We have been thus particular in our detail—perhaps too much so for simplicity—in order to be fully understood, if possible, as we consider this mode the very best and most convenient for obtaining any sized or shaped oval ever invented, not excepting the *stringy* "institution," so highly recommended by some of our respected correspondents heretofore.

REVIEW OF OUR JULY NUMBER.

We have received from a western correspondent the following remarks in relation to the contents of our July number.

"I have been thinking over the principles of draught as applied to wagons, and I think it can be clearly demonstrated that we generally waste power enough in drawing them until they are worn out, to pay for them, sometimes twice over. If this can be proved, as I think it can, it will be important to carriage-makers as well as wagon-makers to understand the remedy for the evil, and I hope every wagon-maker in this state will be wise enough to avail himself of your Magazine.

"The 'Treatise on the Mechanics of Wheel-carriages,' which R. L. furnishes for republishing, is valuable, extremely so, as far as it has gone, and I have no doubt it will come out right in the end, for it is based on philosophical principles. [Mr. L. being engaged in the Federal Army, and no copy being found in the N. Y. libraries, we are compelled to discontinue this series for the present.]

"Miss Annie M. Beach has really furnished a gem of poetry for the Magazine. I do not know when I have seen thoughts so truthfully and grandly expressed. They will be read when we are dust.

"The world has not lost much by the stoppage of the London *Carriage Builders' Art Journal*, or at least that is my opinion from what little I have seen of it. The article copied into your November number was written either by a wag or a fool, and it is hard for me to say which. It is written in such a way that I do not believe that you or your readers understand what he means by a coned wheel. If such a wheel as he speaks of was ever made, how could the tire be fitted to it? Surely it would leave a crack around the wheel on the coned side, yet in the latter part of the article he recommends that kind built broad and coned (or beveled) one-eighth of an inch, which the tire, of course, would take out. Such a truncated cone never was ironed and never can be in the ordinary way of setting a tire."

The New York Coach-Maker's Magazine.

SEPTEMBER 1, 1861.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

BOUND VOLUMES *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

COVERS, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

☞ *All letters directed to this office on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*

W. C. B. OF C. B.—The bills of your province are 10 cents discount in this city. The chart has been sent and remittance credited to you.

T. J. OF IOWA.—If you want the most fashionable plates of carriages, the best way is to subscribe regularly to this Magazine. We know of no other channel through which they can be obtained, nor any source where you could, with so little expense, find "many things that would be useful to a new beginner in business." Your numerous questions would have found ready answers, had you consulted the advertising columns of this work.

S. P. OF N. J.—Please favor us with the name of your Post-office, otherwise we cannot comply with your request; and send stamps for return postage.

J. F. OF MASS.—We prefer to have all subscriptions begin with the June number, but we receive all that offer *in any shape.*

V. R. OF N. J.—The patent perch-coupling man has not allowed a single case to come to trial in N. Y. yet. He is always prepared with some excuse for delay, when such are called on.

☞ The Fifth number of this volume will be published on the first day of November. The reasons for this new plan of issue, will be more fully detailed in that number, the late hour at which this change is made forbidding a more explicit explanation at present.

MECHANICAL LABOR HONORABLE.

NONE but brainless fops and *gentlemen* loafers of the Do-Nothing-Society Order—who are a curse to the community as long as they pollute the atmosphere with their pestiferous breath, and would be no loss to any were they dead—will ever deny that to labor for one's honest bread is not both respectable and praiseworthy. Some of the wisest and best men that have shaped this Republic began their career as mechanics. Franklin did not consider it disgraceful or unbecoming him to trundle a wheel-barrow along the thoroughfare of a densely populated city when his business required it, and he has had many followers of his example since. When a man becomes ashamed of his occupation (except it be an unlawful one) he ought to be ashamed of himself; he ought to separate himself from all human society. It is only the *weak-minded* who are ashamed to work for their livelihood. Even the day-laborer who sweeps our streets is entitled to a degree of respect in the minds of *sensible* men, and is to be commended for his industry, and certainly the industrious and honest mechanic is worthy of as much respect—perhaps more—particularly should he have become a thorough master of his trade, feeling it to be a duty he owed to the public, as well as to himself, whereby he may escape the poor-house and live in comparative independence.

A certain writer says:—"An American should respect himself. A citizen of this Republic should deem himself the peer of the world—one of nature's noblemen. He should consider that the circumstance of his being an American is sufficient to adorn with all proper dignity any trade or profession that he may adopt." We would not, however, stop here; we would consider something more "sufficient," as previously intimated; to make himself respected, the mechanic should strive to improve his leisure hours by study. A well-educated mind is essential to the perfecting of his ingenuity; and it is only the truly educated and scientific man who makes the master mechanic; and it is only the mechanic who is master of his business that can claim the higher respect.

The prejudices which at present exist against the mechanical trades are but the remnants of feudalism, and altogether unworthy of a free people. What distinguishes our's from all other nations in the rapidity of its growth, in the ingenuity of the people? Is it not in a great measure attributable to the industry and enterprise of the "greasy mechanic"? Who have built our rail-cars, our steamboats, and everything else of usefulness about us? Has it not all been done by mechanics? Weighed in the scale of feudalism, every honest means resorted to in this country for obtaining bread become equally base; viewed in the light of republican philosophy, they are all equally honorable. The feudal lord of the middle ages, who perhaps could neither read nor write, looked down upon the merchant, the mechanic, and the laborer, with equal contempt; and the aristocrat of modern times, who can scarcely distinguish between the powers of the lever and the screw, considers himself superior to the wisest and best of those who were born commoners. These ideas of superiority are simply ridiculous; and is it not equally ridiculous to call one business respectable and another less respectable?

Let us then no longer consider it derogatory to their character when we apprentice our sons to learn a trade, for to do so would only be giving sanction to the stupid and exploded notion of a past age. When we permit ourselves to think that the mechanic loses caste for having become one, we have taken a retrograde step—gone back to a feudal age! Such notions should be discarded as unworthy the age and country where common sense gives weight to society, and where real merit gives

a seal to respectability. It were time thrown away to offer arguments to the contrary.

It may be profitable for us to examine the comparative success in life of those who have learned a trade and devoted themselves to mechanical pursuits, and those who have engaged in mercantile business. Will it not be apparent that, where one mechanic has failed, ten merchants have "burst up," dragging down in their fall numerous confidential friends? Some will attribute this failure to one cause and some to another. We think it may be found in the following statement of circumstances, supposing the mechanic and merchant, when they commence business for themselves, are both alike poor, showing very satisfactorily that it is much safer to be a mechanic than a merchant:

When the mechanic engages in business (in most cases) he does better with a small capital than a large one, because he has not yet gained the experience necessary to the most advantageous employment of such. By the use of a few dollars as he gains experience—that experience no book can teach—in connection with industrious effort, his capital increases; not by borrowing money from friends, which must be repaid with interest, but by the sure and legitimate laws of increase, labor is sure to claim in the end. As his capital is increased adding to his individual fortune, to the same extent has he added in useful products to the comforts and wealth of the citizens of the State.

Very different is the case with the merchant. When he launches into business he requires a fortune to begin with. The capital must either be the *gift* of friends, or borrowed funds. In either case his *capital* and *experience* must be widely and inconsistently matched. He argues from the beginning: to start with a small capital will not furnish me with the variety of stock from the sales of which to enable me to pay rent and incidental expenses,—forgetting at the time that in order to succeed with a large capital of money a large capital of experience is needed. The consequences are that the poor fellow soon becomes involved in debt, and, should he not fail in a few months, his *shinning* to avoid such a circumstance can only be carried on as long as the community is not overtaken by "a crisis;" when that comes *he must fail*, and his friends, too!

Take, reader, the whole number of your acquaintances engaged in mechanical occupations, and those engaged in mercantile pursuits, say for the last twenty years; then calculate what percentage of each class has failed, what percentage has gained a decent livelihood without failing, and what percentage has retired with what is called an "independent fortune." We think the result will be found confirmatory of our position—that more merchants fail in business than mechanics—that more mechanics retire with fortunes than merchants.

Look at the lessons of to-day. While war is in our midst and business completely at a stand-still, who are the greatest sufferers? While nearly every merchant has "gone to pot," and his clerks left *without a salary*, how many mechanics are yet "all right?" If business has all failed, *they have not failed*—the majority of them—and when business again revives they will be ready to start anew with unimpaired credit.

PATENT PERCH-COUPLINGS ONCE MORE.—HAUSKNECHT'S ALLEGED INVENTION.

We had persuaded ourselves that the two defeats this perch-coupling man had received in his efforts to establish the validity of his patent, last year, as detailed in our third volume, would have dampened his ambition in that direction; but it appears from the letter below that such is not the case—that he is still *around*, endeavoring to raise the wind among the craft. In this connection we have to ask: What must be the effrontery of any one to claim damages for infringements upon a patent he has failed in establishing a right to in two successive trials, and before juries in different States?

Schoharie, N. Y., July 12, 1860.

Mr. Editor—*Dear Sir:* A few years ago we purchased a right to use Everett's coupling for carriages. Since that time we have noticed in your Magazine that one Mr. Hausknecht has claimed the invention as his own, and commenced suits against parties for using the Everett coupling who had paid for the same. Mr. Hausknecht has called on us and threatened us with a suit for using what we purchased as Everett's coupling and paid for as such. You being posted in the matter, will you be kind enough to give us such information as you may be in possession of in the matter between this Hausknecht and Everett in regard to the coupling, that we may know where we stand? W. and S.

Our correspondents, and others similarly situated, are advised to let our Teutonic friend take it out in threatening. Meanwhile they are referred to pages 118, Volume Two, and 58 and 138, Volume Three, for the *statu quo ante bellum*. The following extract from a letter from Mr. Martin Benson, "Mechanical Engineer and Patent Agent," at Cincinnati, O., written in 1855, may be of some service to those on whom this pretending adventurer calls:

According to dates of the letters patent, it is shown that E. & C. Everett's patent for carriage-coupling was issued December 17th, 1850, and G. L. Hausknecht's original patent December 18th, 1851, and his second patent—*in which he disclaims all the improvements worth anything*, to get rid of the infringements on Everett's patent—was issued January 13th, 1852. Taking the dates of the patents, the Everetts will appear the original inventors; and as to the similarity of the improvements, by taking the drawing left with G. W. Gosling, of Cincinnati (who purchased a right of Hausknecht through his agent, Andrew J. Beaumont), and comparing the said drawing with Everett's patent, they are as much alike as two circles of the same diameter. But on sending to Washing-

ton, and obtaining a certified copy of Hausknecht's patent, and comparing the drawings in the certified copy with what was sold to Gosling by said agent as Hausknecht's patent, it is found that there is no more resemblance between the two than there is in a square and a round figure.

For the benefit of those who may not have convenient for reference the volumes of our Magazine above alluded to, we add the following in regard to the two cases referred to. One was that of *Edson v. Hunt*, tried in 1860, in the United States Circuit Court for the Eastern District of Louisiana, at New Orleans, for an alleged infringement of the Hausknecht patent of January, 1852, and was brought by an assignee of Hausknecht. The defendant denied the infringement, and also set up that the arrangement or combination claimed by H. to be his invention, had been known and used by others before Hausknecht's alleged invention of it. The evidence offered in the case showed that carriages having the turning point in the rear of the front axle, and in combination with segments of circles moving one upon the other, one attached to the axle and the other to the perch, had been in use as early as 1836. The jury, after a few minutes absence, returned a verdict for the defendants, and judgment was rendered in their favor. This suit was *a test suit*, a number of other suits of the same character pending in that Court; and in all such other cases judgment was entered in accordance with the finding of the jury in *Edson v. Hunt*.

The next suit was that of *Hausknecht v. Claypole & Lynn*, tried at Cincinnati, in October, 1860, and also before a jury. The pleadings in this case, and the defence set up, were substantially the same, if not identical with those in the suit tried in New Orleans. The trial commenced on the 22d day of October, 1860, and continued until the 1st day of November, when it was submitted to the jury, who found a verdict for the defendants.

Thus the only two suits that have been brought to trial upon this patent have resulted adversely to its validity. We should consider these adjudications sufficient to justify any one in refusing to acknowledge it, or pay for alleged infringements upon it. The city coach-makers are not frightened by threats. Let our country friends exercise as much bravery.

Should any wish legal advice in reference to this patent, we can refer them to S. D. Law, Esq., of 52 John street, in this city, who has been counsel for those prosecuted by Mr. H., and who knows all the facts bearing upon the matter.

PREPARATIONS FOR WAR.—During June and July, the Quarter-Master's Department at Washington received 906 baggage wagons, 380 ambulances, 950 mules, and 4708 horses, for the use of the Federal army, in their exertions to put down rebellion.

INVENTIONS APPERTAINING TO COACH-MAKING, AT HOME.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS.

*** TO INVENTORS.—Persons who have made improvements in, or hold the right to dispose of, inventions relating to carriages, will find this Magazine the best medium through which to advertise their patents. It is taken by, and has a very large circulation among coach-makers in every State of this Union and the Canadas, and a respectable circulation in England. The terms, which are very liberal, will be made known by letter, to correspondents, when directed to the Editor.

June 11. IMPROVEMENT IN HEADING BOLTS.—Jas. Weathers, of Greensburg, Ind.: I claim the heading-tool, A A′, B, C, C′, *c*, D, D′, constructed and operating substantially as set forth.

June 18. IMPROVEMENT IN BUGGY-TOPS.—L. H. Gano, of Ripon, Wis.: I claim the employment of the lever *a*, rod, *d*, disk, *e*, spring, D, and rods, B B, together with the wheel or its equivalent, upon the lower portions of the front rib or bow of the top, the several parts being arranged and used as and for the purpose specified.

IMPROVED FLEXIBLE-BACK BRUSH.—J. J. Adams, of New York City: I claim my improved mode of constructing a leather flexible brush, the same consisting in securing all the rows of bristles, except the outer one, in the body of the brush, as set forth, then cementing the cover or upper plate to the body, and finally securing the outer row of bristles and the leather portion of the brush at the same time by a single line of wire, as specified.

June 25. IMPROVEMENT IN BRAKES FOR VEHICLES.—J. A. Whitney, of Maryland, N. Y.: I claim the combination of levers, *g*, and *h h*, their arms *g*1, *g*2, *j k*, pivoted together by loose pin, *m*, connected to the break bar, E, and operated by the movements of the draft-pole, D′, substantially as described and shown.

IMPROVEMENT IN CUTTING SAW TEETH.—J. D. Custer, of Norristown, Pa: assignor to Wm. McNiece, of Conshohocken, Pa: I claim the combination of the plunger, G G, and its long screw, and long nut, 4, with the toothing punches, J K, all substantiatly as described and shown, for toothing and setting saws.

IMPROVED SPOKE SHAVE.—Martin Cotton, of Sardinia, N. Y.: I claim the combination of the adjustable cam face, C, with the stock, A, and the knife, B, arranged and operating for the purposes set forth.

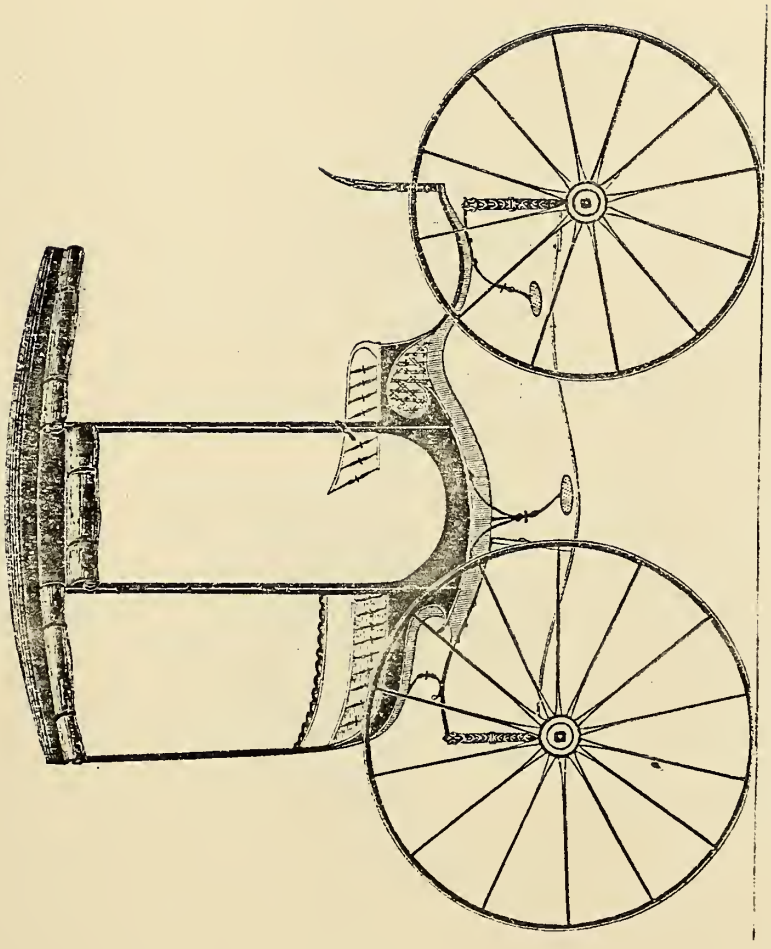
IMPROVED BIT STOCK.—John F. Cory, of New York City: I claim the combination of the case, H, with the shank, A, and socket, C, by means of the universal joint, in the manner and for the purposes set forth.

IMPROVEMENT IN LUBRICATING COMPOUND.—A. Lebkücher, of Belleville, Ill.: I claim the lubricating compound derived from the use of rosin oil, muriatic acid, zinc, lime, olive-oil, and water, in the manner herein set forth.

July 2. IMPROVEMENT IN WHIFFLETREE HOOKS.—Charles Bentz, of Mindenville, N. Y; I claim the arrangement of the spring, H, cockeye, G, lever, F, and bed-piece, B, when they are attached to the whiffletree, A, and made to operate in the manner and for the purposes within described.

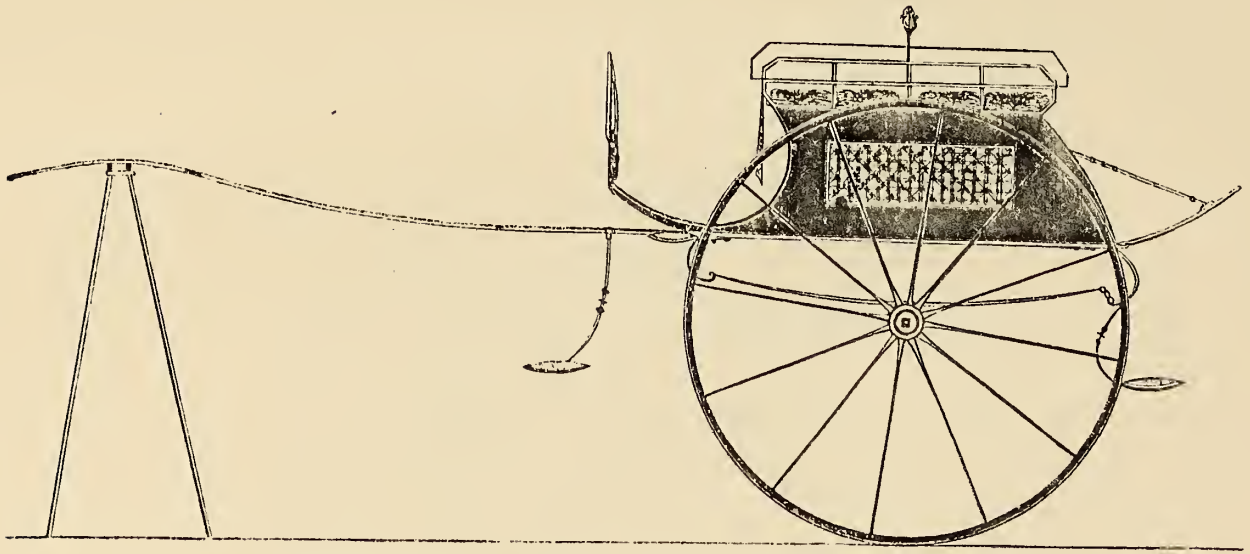
July 9. IMPROVEMENT IN WHEELS FOR CARRIAGES.—John C. Baker, of Adam's Center, N. Y.: I claim the plate, A, provided with the concentric circular projection, B, beveled and corrugated at its periphery, or provided with pointed projections, *a*, in connection with the annular chain of plates, G, the circular plate, H, and the spokes, F, all arranged as and for the purpose set forth.

IMPROVEMENT IN THE TEETH OF SAWS.—L. B. Southworth, of Deep River, Conn.: I claim the forming of the teeth, *a*, of circular saws, by having the points, 2, of the teeth inclined at an angle of about 45° with the radial edges thereof, said points being expanded or having a burr, 3, formed by burnishing, so as to increase the width of the cutting edges, when said points, 2, thus formed, are used in connection with the double bevil at the oblique edges, 4, of the teeth, as and for the purpose set forth.



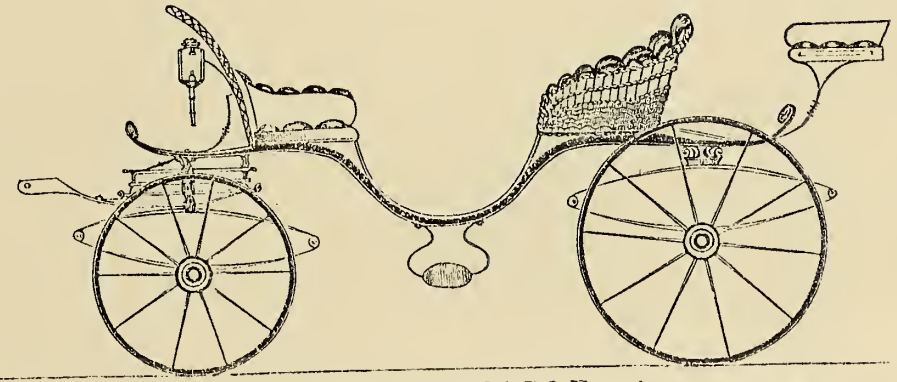
HAVERHILL LIGHT ROCKAWAY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 80.



SHAMROCK DOG-CART.—½ IN. SCALE.

From MESSRS. ATKINSON & PHILIPSON, *Newcastle-on-Tyne. Engraved for the New York Coach-maker's Magazine.—Explained on page* 80.



VIS-À-VIS, OR LIGHT SOCIABLE.—½ IN. SCALE.

Engraved for the New York Coach-maker's Magazine, from the Mercuré Universel.—Explained on page 80.

No. 1.

No. 2.

ORIGINAL ORNAMENTAL DESIGNS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 82.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, OCTOBER, 1861. No. 5.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page* 59.)

THERE was truly no selfishness manifested in my new stopping-place by withholding opportunities from which to form friends and associates in abundance. They were presented liberally of every imaginable quality and grade. These contributions were proffered voluntarily and gratuitously for my acceptance or rejection, of which I however availed myself but sparingly. Notwithstanding the desire for solitude that I had contracted since leaving my old home, I could not suppress a sensation of loneliness in my own heart, nor refrain from a desire for a friend and confidant with whom I could while away my leisure moments, and in whom I could confidingly trust.

My observation was continually furnished with curiosities for investigation, with scenery new and strange in every department of Nature's great encyclopedia, not differing, however, from the experience of every eastern tourist as he proceeds westward. For truly there exists as much difference between the oriental with its picturesque scenery and high mountains with snow-capped heads and verdure-clothed bases, and the occidental with its broad, fertile prairies and alluvial bottoms, where wild flowers are strewn broadcast over the entire scene, as (to use an old simile) there is between day and night.

The work assigned me I soon found to be replete with numerous difficulties, inasmuch as it was entirely a new business, being more laborious and less progressive than I had previously experienced—very perceptibly affecting my hands and courage. I determined, however, to persevere despite these disadvantages, and nerve myself to the task. The spokes must of necessity be extracted from a huge pile of rough and unseemly stuff, just as it had passed from the woodman's hands,—nothing unusual, however, in these parts, as wagon spokes were invariably constructed from similar material and by the same process, as far as my knowledge extended in the West. Cutting the felloes, which was accomplished with a common whip-saw, was also a new business to me, and required much patience to acquire the proper method of using that uncouth-looking implement—machinery had not yet superseded the more primary modes of performing labor in those branches. It seems utterly impossible that men should have so little of the presage of invention about them, as to work half a century—as some have—without making the slightest improvement on the slow, fatiguing, and uncertain methods of accomplishing mechanical ends. In these observations we are sometimes pretty nearly led to deny the old maxim, that "Necessity is the mother of invention," but that it is a natural gift, with which few are endowed, and upon which none dare presume to infringe.

I labored steadily and energetically while I remained, however much of repugnance I may have felt for this branch of mechanism. I made but few acquaintances,—none outside of the small arena in which I operated, and of those I became intimate with but one, a young man of foreign birth who had a few years previously bid adieu to the green fields of Hibernia and migrated to America in search of a more liberal government and greater capacity for the exercise of his mechanical powers. Being a whole-souled, warm-hearted fellow, who could always conceive a plan in a moment by which a fortune could be realized at a single venture, or, as he would say, "more congenial than trudging at a trade." Being free to communicate and confide, I could not refrain from becoming intimate with him. This proved to be a great source of comfort to me, as I had found none I wished to confide in since I left the scenes of my early associations. With this friend, whom I had learned to value highly, not from any misrepresentation or false impression, but from what I considered his worth truly merited, I would pass my leisure moments.

When the hour of two, Saturday afternoon, had come, and the "hands" all "knocked off," he was ever ready to proceed with me on our customary stroll, our principal resort being on the river bank at some considerable distance from the town, where we could lounge in the shade of a great, wide-spreading elm, that looked down on us in solemn grandeur, offering one of the loveliest retreats for rural seclusion. Here each would narrate his respective experience in the past, and sympathize or applaud alternately for the evil or good, as the case required, always

ready to proffer a word of advice, or breathe a word of consolation to each other. Here we would talk of our old homes—he of the green isle of the ocean, I of New England; then we would speculate on the future, building air-castles of enormous size and enchanting magnificence, speculating also upon the prospect of acquiring immense fortunes at no distant epoch in the future.

The summer passed away rather slowly, but finally autumn, with its gold-tinted robes interlaced with purple and blue, and its garlands of rich verdure, came on in the proper course of events; and, for the scorching, withering beams of the summer sun, substituted the mild, silvery stream of liquid light and warmth, only found in this season of the year, and which can only be described properly by using the strong adjective—beautiful!—taken in its most potent meaning. The rays of the sun were so mild and genial, and the sky that canopied the entire scene cast such a soft, dreamy, benign influence far and wide, that we were sometimes constrained to wonder if the skies of Italy, with all the brilliant and dazzling accounts of painter and poet, could possibly surpass these.

I now began to feel the loneliness of my situation more keenly than at any former period, when, fortunately, a traveling "smith," in search of employment, passed that way, and, while in conversation with him, I learned that in a shop some fifty miles north of Gallipolis a vacancy existed, and a good jour. might obtain a place. Dispatching a communication, I awaited an answer with some impatience, but was finally rewarded by an answer, when I had the satisfaction of knowing that my services would be accepted immediately. I at once set about making preparations for my departure. After procuring a passage on the mail-coach, and bidding the numerous citizens with whom I had become acquainted good-by, I "seceded" from Gallipolis and its surroundings to what I considered a better situation. The history of my travels between the point of my departure and the termination of my journey could hardly be interesting to any one, so I shall merely mention the most striking features—the roughness of the roads—and pass it by.

As the small hours wore away, and the gray streaks of morning began to appear in the east, the driver's bugle announced our near approach to a station, soon after which we were requested by the polite landlord to alight in front of the principal hotel in the village of L. After partaking of a light breakfast I started in search of the aforesaid carriage-shop, where I introduced myself, and was kindly received by the proprietor. I soon arranged my tools, and commenced operation at fourteen dollars per week, which seemed almost miraculous compared with my wages at Gallipolis.

Here I found myself laboring under more favorable auspices. Although the work must be performed by hand, yet, being light, it partook much less of fatigue than I had recently experienced. One advantage I had gained at my last place: I had learned the use of the whip-saw, which knowledge proved very profitable to me now, as no machinery was in use at the shop. According to request I had sought a situation for my friend, and a month after he was busily engaged, near by, at his trade.

After a month's close application at the "bench," my friend proposed that we should spend a day in hunting, to which I quickly agreed, and the day was accordingly appointed, and, after making some inquiry of old residents, our field of operation was selected, some five miles distant, on the Hocking, where we were informed a dense forest lay, and game of various kinds abounded. The landlord was invited to accompany the expedition, which he very readily agreed to do, and everything was put in readiness to spend the day as comfortably and profitably as possible. The appointed morning had finally dawned, and the clear, deep notes of the mocking bird, singing merrily from the thick branches of the shade trees near by, had partially awakened me from my slumber, his sweet warbling seeming like far-off music to my dreamy senses; but suddenly I was thoroughly aroused by a loud rap on the door, when it opened abruptly, and my friend strode in with all the characteristics of perfect freedom, and inquired if I was ready to proceed to the wood? "Turning out" hurriedly, I proceeded to make my toilet, for which a few moments sufficed, and after discussing the breakfast sparingly, announced myself in readiness to proceed. The driver soon reined up at the door, and with our host we embarked and set out toward the forest.

"We will dine at an acquaintance's of mine to-day," said the landlord, as we whirled forward at a terrific rate. "You are the chief of this expedition," I replied, and continued to survey the landscape exhibited on every side. Though it might not have been called beautiful by some, yet, with the golden rays of the morning sun bursting through the trees, whose leaves had began to fall, touched by the icy finger of frost and tinged with yellow and gold, there was imparted a degree of grandeur that awakened impulses of admiration in the mind of the observer. The mocking-bird still continued to pour forth his mimic song in the most ludicrous and grotesque manner ever listened to by mortal. An half hour's drive brought us in front of a neat farm house overlooking broad-bottom fields, heavily laded with ripening corn, which told unmistakably of abundance and to spare. A broad lawn, set with evergreens, tastily arranged, and spread with a green carpet, fronted the house; while a beautiful garden laid near by, strewn with flowers of various descriptions, contributing greatly to ornamenting the premises and constituting a rare place of attraction to the lover of the beautiful.

The landlord alighted to announce our intention of dining there, when he soon reappeared, accompanied by his friend, and we proceeded towards the hunting-ground—leaving the "turn-out" with the driver, who was instructed to follow, after he had disposed of it. After trudging up a steep, uneven ascent, and arriving at the summit, we sat down to rest a few moments before beginning the operations of the day, and to take an observation of the surrounding country. Below us, to the left, reposed broad, fertile fields, whose bosoms were laden with vast burthens of grain waving in the rich autumnal breeze, and spoke favorable of the future prospects of the agriculturist. Further on, the Hocking met the vision as it swept by in tranquil beauty, winding down its serpentine course along the entire view before us; with its silvery surface like a polished mirror glittering in the distance, spreading an enchanting charm over the entire panoramic picture beyond. To the right the heavily-timbered bottoms, occupying the space between the river and bluff on which we sat, extended far beyond the scope of human vision; the tree-tops being equal in altitude to the position we occupied, thus presenting a boundless level of green foliage. Behind us extended a vast timbered expanse, where the beech, sugar-maple, oak and poplar, mingled their branches together, forming a resort for game of all description.

Such scenes must be witnessed that their beauties may be appreciated; the pen is inadequate to describe or the tongue to relate them in a proper manner.

These woodlands were to be the scenes of our excursion, and afford us a good opportunity for the display of our skill in the use of the rifle. The landlord, who was to propose the programme of action, now announced his readiness to proceed.

We formed ourselves into two parties, myself and landlord going in one direction, while the balance went another, with instructions to keep within hearing of each other, thus avoiding the danger of becoming bewildered and lost in the depth of those dense and uninhabited forests. We had proceeded for half an hour in perfect silence, without being rewarded in the manner I had anticipated. No game had made its appearance; we had not seen a twig move or heard a leaf rustle; had heard nothing save our own tread, as we moved stealthily on. I had began to censure Boone and Carson as humbugs, and to scout the story of an Esau; and had firmly and uncompromisingly settled into the conclusion that I would never adopt their mode of living, when I was suddenly aroused from my mixed thoughts of incredulity and disappointment by the abrupt halt of my companion, preceded by the sharp, piercing growl of the faithful pointer which had accompanied us. "Is it an indication of the presence of game?" I inquired, when the landlord replied, in a low voice, "If we keep silent, we'll soon see what has caused the alarm from our pointer." My host now moved forward slowly and carefully, indicating, by a motion of the hand, that I should follow. When within a few paces of the animal, we again halted, and, coming to a "present arms," the landlord indicated, by a low whistle, that all was ready, when the dog, faithful to his training, bounded into the underbrush and disappeared from sight; which movement was simultaneously followed by the thunder of flapping wings, and a vast flock of wild turkeys rose upon the morning air, and perched on the branches above our heads. The landlord admonished me, in suppressed tones, to not move from my position, as long as I could possibly fire from it. Thus, all being in readiness, the firing commenced, and the sharp reports of our guns attracted the attention of our friend in the distance, and his rifle was soon heard on the other side administering death and destruction among the winged tribe.

A half hour sufficed to disperse the flock, when, by signal, the parties were assembled together to ascertain the amount of our success, which proved to be far beyond our most sanguine expectation. Fifteen of their bodies weltered at our feet, as evidence of the vast havoc dealt among their number by our unerring rifles.

The forenoon had been passed with varied success, being much enjoyed by those who, like myself, had never participated in such amusements before. Our friend now announced the time for dinner, and we hastened to the house, where my friend and I were introduced to the kind and accomplished family of our host, who spared no pains to entertain us in a most agreeable manner. An excellent dinner awaited our return, in the discussion of which we did ample justice, to which fact I doubt not the worthy hostess could abundantly testify. The remainder of the day was spent in a very sociable and gratifying manner, amid books, pictures, and flowers, and the company of our very agreeable friends, whose hospitality and sociability created a warm and lasting impression on our minds.

The sun's rays were still gleaming through the tree-tops that fringed the brow of the western hills, throwing a golden tint over the entire "landscape," rendering that hour the most pleasant and beautiful of any time in the day, when we were called—and, very reluctantly, too, as the reader may imagine—to embark, preparatory to returning to the village. Waving a reluctant "farewell," we swiftly turned away, and soon found ourselves carefully cared for at our village quarters.

(*To be continued.*)

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 63.)

Somewhere about the year 1760 the Brouette, or Roulette, was introduced into England from France, where it was invented in 1620, and was the first covered carriage used among the Parisians. In derision these were called *Vinaigrettes* (sour), probably by the sedan-chairmen; and not improperly so, for doubtless many of that occupation had their tempers *soured* on seeing them employed instead of sedans—as for awhile the Brouettes usurped the place of sedans in popularity. Indeed, the proprietors of the sedans interfered to have them prohibited. For a time they were forbidden, but were permitted in 1669, and in 1671 were in general use. Adams says, that "Dupin, the original French inventor, found means to contrive them, so that their motion was tolerably easy; and his ingenuity concealed his art so well, or, rather, the Parisian mechanics of that time had so little of enterprise and curiosity, that he was the only one who made them." They were originally without springs, but were ultimately improved, and their appearance, about 1760, may be seen in Fig. 18. The body has very much the appearance of a sedan-chair, but is hung on two wheels, and dragged by men —the one in front supporting the shafts by a leather strap, while the machine is steadied and pushed forward by the second man behind. There are two legs framed into the shafts, to support them when they are at rest. It is said that in one or two London parishes, at the present time, similar contrivances are employed for removing sick paupers.

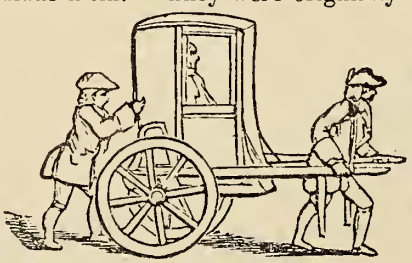


Fig. 18.

In 1750, great improvements were made in carriages. Instead of being made close, they were built open and airy, fitting them for comfortable summer use. This was the Barouche, the upper portion of which was so contrived that it could be turned down at the pleasure of the passenger; a plan combining free circulation of air and unconfined vision, with what at the time was considered very light construction. This, as pictured in Fig. 19, would in this day be called very clumsy. It is copied from a print intended to ridicule the follies of the year 1767, among which riding in carriages was classed, and, as a modern writer observes, "after the ordinary fashion of moralists, who generally contrive to be on the safe side by condemning every new thing." This party picture was de-

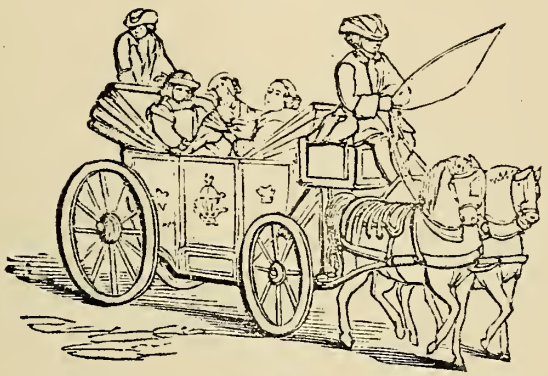


Fig. 19.

signed to represent "British nobility *disguised*." The state of the pavements, until the middle of the last century, gave but poor encouragement to the building of light carriages, and the fears of an inexperienced people put a check upon the use of pleasure carriages; but since that time we find them coming rapidly into use.

Pepys, in his diary, gives us this interesting item: "My Lady Peterborough, being in her glass coach, with the glass up, and seeing a lady pass by in another coach, the glass being so clear that she thought it open, and so, in putting on the fashionable airs, run her head through the glass,"—which "*fashionable air*" has found sufficient involuntary imitators down to the present time.

We are assured that all the public conveyances of this period, such as hackney and stage-coaches, were constructed with great disregard to comfort, and economy of time, and that the risks of being robbed in the streets, in the early part of the seventeenth century, rendered such travel very dangerous. The "Postman," of October 19th, 1728, observes, that "The persons authorized by government to employ men to drive hackney-coaches have made great complaints for the want of trade, occasioned by the increase of street robbers, so that people, especially of an evening, choose rather to walk than to ride in a coach, on account that they are in a readier posture to defend themselves, or call out for help, if attacked."

As late as 1767, Mr. Young "found the lanes so narrow that not a mouse could pass a carriage; and ruts of incredible depth; wagons stuck fast, until a line of them were in the same predicament, and required twenty or thirty horses to be fastened together to each to draw them out one by one." Malcolm, in his "Anecdotes of the manners and customs of London," tells us that "those honest city tradesmen and others who so lovingly carry their wives and mistresses to the neighboring villages in chaises, to regale them, on a Sunday, are seldom sensible of the great inconveniences and dangers they are exposed to; for, besides the common accidents of the road, there is a set of regular rogues kept constantly in pay to incommode them in their passage; and there are the drivers of what are called waiting-jobs, and other traveling hackney-coaches, with sets of horses, who are commissioned by their masters to annoy, sink, and destroy all the single and double horse chaises they can conveniently meet or overtake in their way, without regard to the lives or limbs of the persons who travel in them. What havoc these industrious sons of blood and wounds have made within twenty miles of London, in the compass of a summer's season, is best known to the articles of accidents in the newspapers—the miserable shrieks of women and children not being sufficient to deter the villains from what they call their duty to their masters; for, besides their daily or weekly wages, they have an extraordinary stated allowance for every chaise they can reverse, ditch, or *bring by the road*, as the term or phrase is. I am credibly informed that many of the coachmen and postilions belonging to the gentry are seduced by the masters of the traveling-coaches to involve themselves in the guilt of this monstrous iniquity, and have certain fees for dismounting persons on single horses and overturning chaises, when it shall suit with their convenience to do it with safety—that is, within the verge of the law—and in case of an action of indictment, if the master or mistress will not stand by their servant, and believe the mischief was purely accidental, the offender is then defended by a general contribution from all the stage-coach masters within the bills of mortality." This is a very sad "tale of the times," and scarcely credited by us who live in a more civilized age.

It is generally conceded, that regular stage-coaches were not established in England until 1744, in the reign of George the Second, and at first only six were employed in all England; but small as the number was, and slow as their rate of traveling appears to us, this change of conveyance made a great alteration in the habits of the middle ranks, as a writer of the period—Mr. John Cresset, of the Charter House—observes:

"These stage-coaches make gentlemen come to London on very small occasions, which otherwise they would not do but upon urgent necessity; nay, the conveniency of the passage make the wives often come up, who, rather than come such long journeys on horseback, would stay at home; here, when they come to town, they must presently be in the mode—get fine clothes, go to plays and treats, and by these means get such a habit of idleness and love of pleasure that they are uneasy ever after."

In the following engraving we have the picture of a stage-coach of the time of Hogarth (Fig. 20), or at least

Fig. 20.

similar to the one represented in his print of "The Country-Inn Yard," which he so ludicrously represents. Instead of two, it would appear to require no less than six horses to draw it conveniently. The model is far behind the beauty shown in the pleasure carriages of that period. The driver seems to be cramped up in a very ill-constructed boot, and the low-fare passenger with the baggage on the roof set all hopes of comfortable traveling at defiance.

The twain *bundled* in the box with the trunks, in rear of the body, are, if possible, still more inconveniently placed; nor were the inside passengers much better off, should light and air be required. A Frenchman (M. Sorbeire) who visited England in the time of Charles II., says: "That I might not take post, or be obliged to use the stage-coach, I went to Dover in a wagon. It was drawn by six horses, one before another, and driven by a wagoner, who walked by the side of it. He was clothed in black, and appointed in all things like another St. George; he had a brave mounteros on his head, and was a merry fellow, fancied he made a figure, and seemed mightily pleased with himself."

The conduct of these hackmen is still more *illustrated* in an old writer's story, and quite outdoes the practices of modern cabmen. He tells us, "Those hackney gentlemen have, by their overgrown insolence, obliged the government to take notice of them, and make laws for their regulation. The particular saucy, impudent behavior of the coachmen in demanding the other *twelver* or *tester* above their fare, has been the occasion of innumerable quarrels, fighting, and abuses; affronting gentlemen, frightening and insulting women, and such rudenesses, that no civil government will, or indeed ought to, suffer; and, above all, has been the occasion of killing several coachmen, by gentlemen that have been provoked by the villainous tongues of these fellows beyond the extent of their patience. Their intolerable behavior has rendered them so contemptible and odious in the eyes of all degrees of people whatever, that there is more joy seen for one hackney-coachmen going to the gallows, than for a dozen highwaymen and street robbers."

In the latter part of the eighteenth century, great improvements were adopted in the construction of English carriages. The roads, so long unimproved, had received more attention, and were better accommodated to the wants of the nation. This had given a new impulse to traveling, and as this became a matter of pleasure as well as business, a greater variety in construction was demanded. These varieties we shall be able to give more in detail in succeeding chapters, from the practical designs of a London coach-maker, first published about 1774—the last edition, in which the *changes* in fashion are added, thirty years afterwards.

(To be continued.)

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

That there is a material difference in the amount of power required to draw wagons and carriages of the same weight, and apparently of the same form in construction, no sane man who has paid the least attention to the subject will deny. What amount of power is wasted by wrong construction is a matter more difficult to determine. We observe the difference from the manner our teams are worked, or perhaps from the amount of load they are able to move over the same road.

I have asked men who were well acquainted with the teaming business to define the amount in pounds that it would take more, to draw a hard-running wagon in a horizontal line, than it would an easy-running one of the same weight. Some say ten, twenty, and as high as fifty pounds, difference. It is possible their estimates are too high, but the fact that there is even one pound of horizontal draught unnecessarily attached, makes it a subject second to none in mechanics. A question will arise where wagons are constructed the same size in wheel, arm, and axle box, and of the same material, why should there be any difference?

When mechanical laws are strictly and mathematically observed, results are always the same under the same circumstances. For instance, scales for determining the weight of things when mathematically constructed, if the poise, when placed one inch from the fulcrum of the beam, shows the weight on the platform to be one hundred pounds, then the same poise, placed two inches from the fulcrum, will show the weight to be two hundred pounds, and so on in the same proportion, to the end of the beam, adding one hundred pounds to every inch. This is a mathematical result which we derive from lever power, and which is uniformly the same and can always be calculated, because the science of building scales has been so fully developed that none of the lever power is wasted, and the friction is reduced to the very least possible amount.

Wagons, when made of the same size, same weight, and form in the construction, can have the same uniformity of scale in results—with one exception—and that is, when in use they cannot be kept in the same favorable position that scales can, yet if they are made alike in every respect, when drawn over the same road with equal loads, the power required to draw them will be the same.

There are definite rules which all wagon-makers agree are essential to be observed in constructing wagons in order to make them run easy, but I have had an opportunity to examine, within the last seven years, over one thousand wagons and carriages, a large proportion of which I have tested by correct measurement, and I can say that I have found but very few to agree with the principles which mechanics generally say are necessary. Every good mechanic knows that by placing the arms of the axle-trees to a wagon one eighth of an inch out of the proper position, it will increase the draught of the wagon considerable; perhaps ten or twenty pounds. The value of this wasted power can be more easily calculated than the amount in the pounds wasted. From observation I have made, stage coaches will run at the rate of seventy-five miles per day, for nine hundred days, carrying a load of 3,000 lbs., inclusive of the coach, which will make the distance of 67,500 miles. Teamster's wages for hauling the load would be at least 66⅔ cents per hundred pounds for hauling the load every hundred miles, which would make the sum of $13,000 earned with a wagon before it was worn out. The draught to draw 3,000 lbs. on a wagon would not be over 400 lbs.—perhaps 300 lbs. would be nearer the amount. Divide $13,500 dollars by 400, and we have $33 75 for every pound draught while the wagon is wearing out. This is the cost of one pound unnecessarily attached to the whole load, which if occasioned by the draught of the wagon alone, if the wagon is one third the weight of the whole load, would increase the sum three fold, which would be $101 25. The same facts apply to pleasure carriages, only as the draught in them is more valuable, it would increase the amount in the same proportion.

From these calculations, sharp buyers can learn, when they are bantering on the price of a wagon, or carriage, that a few dollars on the price of the article is of no account—comparatively speaking—with the quality of the

article; for if they buy a wagon which weighs 1,000 lbs., and it requires 126 lbs. draught to draw it, it will be worth *one hundred and one dollars and twenty-five cents less* than one of the same weight which requires only 125 lbs. draught to draw it. These are truths which result from mathematical calculations, which can only be varied for the worse towards hard-running wagons, for we all know there is more than one pound difference in the draught. I should think ten pounds difference was a very common occurrence, and if so, the unfortunate purchaser of a hard-running wagon saddles himself with the enormous expense of *one thousand and twelve dollars and fifty cents*, which he has to pay in teaming before he wears his wagon out.

That these are not vagaries peculiarly my own, I will quote from an article published in this volume, on page 46, where, speaking of the army wagons and the modern improvements which they lacked, it says: "In our young days all farm wagons and carts had wooden axles, and great hubs, and pipe boxes to suit the necessary size of the shafts. Then came the cast-iron arms to axles, and these, though an improvement upon the old hard-frictioned wooden-axles, soon gave place to wrought iron, and small pipe boxes, and now no enterprising farmer would use wooden axles. And no farmer who knows of a still later improvement—an improvement upon all other iron axles as great as iron over wood—will now buy a wagon that is not provided with case-hardened axles and chilled pipe boxes, for this improvement saves nearly twenty-five per cent. of motive power." If it is a fact (and I have no reason to doubt that it is) that with a good running wagon we can earn $13,500, and with a hard-running wagon we waste one fourth the motive power; if we use the two wagons with the same motive power, there will be a difference of $3,375 lost, by using a hard-running wagon. All that prevents these results from being carried out to the letter is, that the hard-running wagon will wear only three fourths as long as the easy-running one will. The same article from which I have quoted above says: "Some of the farmers and market-gardeners about New York say that it saves one half," making a difference of $6,750 in two wagons. These calculations seem extravagant, but I do not see where they are over colored; and if they are in any way to be relied upon, there is no subject which a mechanic can turn his attention to with more profit to himself and the world at large. One thing will be apparent to every reflecting mind—it is this, that there is no necessity of a difference in the draught of any two wagons of equal weight, for both are propelled by a cause, and like causes produce like results, is a fact well established.

I do not believe it requires any additional expense on our present mode of building wagons to remedy the evil under which we labor; on the other hand, some expenses might be curtailed. Every pound reduced on the weight of a wagon—at the same time preserving sufficient strength—is worth over four dollars to the vehicle, which shows the folly of using one and a half pounds of poor iron where one pound of good iron is equally as strong. In order to make an appearance of strength, mechanics are often led into very foolish and expensive ways. In the tire we frequently see thirty or forty pounds used, more than is necessary in proportion with other parts of the wagon; and this unnecessary weight is regarded by the ignorant and unthinking purchaser (in that respect) as one grand point of strength in the wagon. There is no fact more susceptible of positive proof than that such a wagon is not worth a single cent, with such an incumbrance. Let a skillful workman exercise good judgment in proportioning a wagon, or carriage, avoiding all ornamented iron or wood work which has no other use than ornament, is a rule which, if strictly observed, would be of great benefit. It is hard to find terms of condemnation strong enough to use against the idea which very generally prevails—that almost anybody can get up a wagon without making the business a study. This monstrous error costs the world millions on millions of dollars in hard toil, besides taking from the useful mechanic the honest and just reward for the knowledge and skill which he meritoriously has acquired.

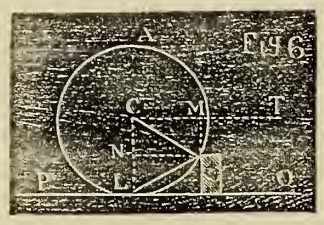
The motive power used in propelling wagons is a lever power, and the differences and defects we see in their operations are caused—1st. Either by attaching the power in such a manner that some of the lever is wasted; or, 2d. The motive power is lost by placing the wheels in such manner that the lever becomes cramped, thereby occasioning unnecessary friction; or, 3d. By placing the wheels in such a position that the bearings on the axle-arms are unequal at the shoulder-point; or, 4th. By using material for the axle-arms and boxes which does not polish smooth, thereby creating unnecessary friction. Under some one, or all of these different heads, the difficulties in making the draught of wagons alike and perfect originates, therefore I propose investigating the subject under these four heads, and, if possible, determining a rule whereby these various impediments may be avoided.

(*To be continued.*)

A BRIEF TREATISE ON THE MECHANICS OF WHEEL-CARRIAGES.

(*Continued from page* 28.)

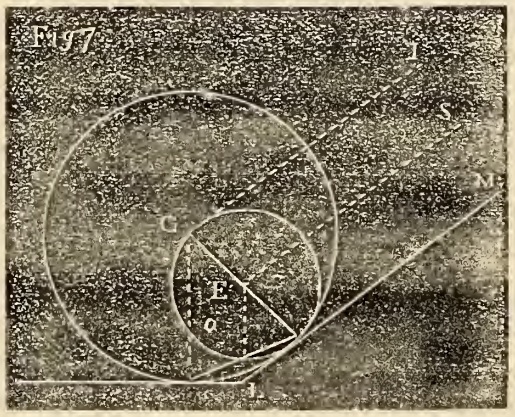
This view of the manner in which the wheels of carriages act, will serve to elucidate the question, whether large or small wheels are preferable for carriages? Let the circle fig. 6 represent a wheel of two feet diameter, and the obstacle in its way 7.03 inches in height, then will the true level be represented by the lines C O L, to be reduced to the imaginary ones M O N. In this case, the power required to draw the carriage must be to its weight as N O is to O M, which is more than double; and thus the advantage of large wheels over small ones is evident. In this, however, as in all other cases where wheels act as mechanical powers, we must remember that the same doctrine applies to them as to the powers themselves when used in any other manner, viz.: that as much as we gain in power we loose in time; and therefore, though a wheel of twice the diameter may be raised over an obstacle of any given height with twice the ease that would be required for one of once the diameter, yet the large wheel would require twice the time to move over it that the small one does.



Hitherto we have considered the carriage as being drawn in a direction parallel, or nearly so, to the plane on which the wheels move, which line is supposed to be horizontal; but the case will be different when we suppose them to move upon an inclined plane; for then, even though the line of traction be parallel to the ascending

plane, and though the wheels act as levers, we shall find that the action of the weight will increase with the power gained by the increase of size in the wheels; and, consequently, that the increased size of the latter will be of no further use than that of diminishing the friction, in the same manner as is done upon horizontal planes.

To illustrate this, suppose the larger circle in fig. 7 to represent a wheel of four feet diameter, and the smaller



circle a wheel of only two, both of which are made to ascend the inclined plane L M, by powers applied in the directions G I and E S parallel to the elevation of the plane, which is 45 degrees; it will then be found, that by describing the lever as in the former case, though the arm of the lever to which the power is applied be double the length in the large wheel that it is in the small, the other is augmented in the same proportion. Neither will the powers be augmented by varying the direction of the line of traction; for while these are kept parallel to one another, their relative powers must always keep the same proportion to one another. The reason is obvious, viz.: that when wheels of any dimension ascend or descend inclined planes of any regular elevation, the fulcrum of the lever contained in the wheels must be determined by that part of the wheel which touches the plane, and which must always be of a proportionate height both in large and small wheels. It is otherwise, however, with the fulcrum marked out by perpendicular or irregular obstacles upon the plane itself; for large wheels will always have the advantage over small wheels when these are presented, for the reasons already given. Indeed, when the wheel impinges perpendicularly upon an obstacle as high as the line of traction, it is plain that it cannot be drawn over it by any power whatever, unless the direction of the latter be altered. From these considerations, our author draws the following conclusions:—

I. That in a carriage placed upon an horizontal plane, nothing more is required to produce motion than to overcome the friction which takes place between it and the plane.

II. By the application of wheels to a carriage, the friction is lessened in the proportion of the diameters of the axles and hollow parts of the naves to those of the wheels.

III. In the draught of a carriage without wheels up a regular plain ascent, the friction must not only be overcome, but there is a power likewise to be applied sufficient to lift such a proportion of the weight of the carriage as the perpendicular part of the ascending plane bears to that portion of the plane.

IV. If wheels of any size be applied to the carriage in such circumstances, they have only the advantage of lessening the friction; for though they really act as levers, yet as each arm of the lever is lengthened in proportion to the increase of size in the wheels, the power can be no farther augmented than as the ascent may act as a mechanical power for raising up the wheels of the carriage, &c., to the top.

V. The line of traction, or that in the direction of which the carriage is drawn, should always, if possible, be parallel to that in which the plane lies; for when this is the case the arm of the lever to which the power is applied will bear the longest proportion possible to the other. This always takes place when the line of traction is perpendicular to that spoke of the wheel which points to the obstacle. As it may not always be possible, however, to alter the direction of the line of traction to this position, it will be most proper to fix upon some medium betwixt that which commonly occurs and that which requires the greatest exertion, to overcome the obstacle; that is, betwixt a level line and one rising perpendicular to the spoke of the wheel which points to the obstacle it is likely to meet with. The greater attention ought to be paid to this last, that all wheels, but especially small ones, are liable to sink into the ground over which they pass, and thus produce a constant obstacle to their own progress. The line of traction, it must be observed, is not an imaginary one drawn from that part of the animal to which the traces or chains are attached to the axle of the wheels, but the real direction of the traces to whatever part of the carriage they are attached, for the effort will be instantly communicated in the same direction from one part of the carriage to all the rest, by reason of the whole being fastened together and in one piece.

Hitherto we have considered the whole weight of the carriages as bearing perpendicularly against the axle of the wheels; but as this cannot be done in chairs, carts, and other carriages having only two wheels, it will be necessary to have their centers, or transverse lines of gravity, as near the ground as possible. To understand this, it must be premised that the center of gravity is that point of any body which if suspended will keep all the parts of the body at rest, let the body be placed in any situation we please. Thus, the center of gravity in a wheel or circle is the center of the circumference, provided the substance of it be equally ponderous throughout. In like manner, the real center of a globe coincides with the center of gravity, provided the matter of which it is composed be equally ponderous. In a square, whether superficial or solid, the center of gravity will be a point equally distant from all its sides; so that if the substance be equally heavy, it will be impossible to turn it into any position in which there will not be as much matter upon one side of the center as upon the other.

(To be continued.)

Preparations for War.—The acting Quartermaster-General has ordered the construction of one thousand wagons for the use of the army, to be built by ten different manufacturers, in as many different towns. These will be made in shops from Baltimore to Concord, N. H., which embraces the principal factories in this country having the facilities for executing the work properly and expeditiously.

Home Circle.

For the New York Coach-maker's Magazine.

IT IS RIGHT TO BE PROUD.

BY ANNIE M. BEACH.

Children of poverty, hard is your lot;
Many the sorrows that dawn with the day,
Many the cares that the world knoweth not,
Many the griefs that are hidden away.

Hidden away from the gaze of the world,
Hidden away from the careless and cold;
Many the tear-drops that never are seen,
Many the heart-throbs that never are told.

Which are the greater, the rich or the poor?
They that have silver, or they that have none?
Covered with purple, or covered with rags?
Lo! every heart is but fashioned as one.

And it is well that we all should be *proud;*
Honest pride keepeth the world from decay—
Carves out a path, though the road may be rough,
Throws off the sorrows that dawn with the day.

Proud, not of gold which we never have earned,
Not that we live, and have nothing to do;
But of the will that is ready to work,
Laboring still for the good and the true.

Pause not to weep o'er the ills that oppress,
Ye that have silver, or ye that have none;
Boldly go forth to the "battle of life,"
Proud to be crowned when the field has been won.

Cambria, N. Y., 1861.

For the New York Coach-maker's Magazine.

THE HISTORY OF A LILY.

BY MISS ROSA STONEHILL, NEW YORK.

In the prettiest little spot that the heart could desire, once grew a lily. It was surrounded by large, green trees; the waters of a little stream rippled laughingly along, reflecting a humble cottage on its banks. In this delightful spot grew the lily; and for the time was quite contented with her lot. But one day a very rich lady happened to pass by, with a beautiful bouquet of hot-house flowers in her hand. The lily, seeing her, said to herself, "I should much like to live with such brilliant flowers, and a lady so gaily dressed." As the lily peeped out eagerly, the lady espied her lovely cup, immediately plucked the lily and put her among the other flowers. At that instant the lily felt a pang of regret in her heart that she had been so hasty. This passed away, however; for when brought to her new home, she was quite pleased to be put in a beautiful vase. But, alas! she was alone; for the lady would not let her be crushed in among the other flowers. By the next day, the lily felt very sad and lonely; for the other flowers said they would not talk to such a country weed; and she longed also to sip the dew which had fallen upon her in her grassy home.

Thus the lily lingered for two days, sick and sad; the third day, the house-maid, after sweeping the room, took the poor flower by her tender stalk and threw her into the gravel walk: thus died this poor, foolish flower.

How happily might she have lived had she been contented in her old home! But it is not thus with the lily alone; it is often so with ourselves. We are not always contented with our lot, because we do not appreciate the pleasures and blessings which are given us until, like the lily, we are deprived of them. Let us all learn, from the lily's fate, a lesson of contentment.

Pen Illustrations of the Drafts.

HAVERHILL LIGHT ROCKAWAY.

Illustrated on Plate XVII.

With this drawing, from our friend Mr. J. R. Bartlett, of Haverhill, Mass., we were favored with the following remarks: "Enclosed I send you an original design for a Light Rockaway, which is entirely new. I only had the chance to build one before the war commenced, which has stopped all business here for the present. It is made *very light*, with the pump-handle slightly carved behind, and a little caned-work in front. Everything else, I believe, will speak for itself. Hoping it will give you every satisfaction, I remain yours, as ever, J. R. B."

SHAMROCK DOG-CART.

Illustrated on Plate XVIII.

For this design we are indebted to our friends, Messrs. Atkinson & Philipson, coach and harness makers, at Newcastle-on-Tyne, Northumberland, England. It is a selection from a number sent us by said firm, more of which we intend to present hereafter in our Magazine. This manufactory is of very long standing, it being first established in 1794. The works are very extensive, and fitted up with the most approved machinery, which is applied to every process where it can be done to advantage. From the drawings put in our possession, we infer that the carriages made in Newcastle are not surpassed in style and finish by any house in the British metropolis, on which some very important improvements have been made.

The body, of beautiful design, is hung on long side springs, fixed to lance-wood shafts, with a seat to balance on a slide, and trimmed with what is known in England as Valencia cushions. In the drawing, the side is represented with caned-work; in some dog-carts, a fancy wire-work is substituted. Lance-wood shafts are far preferable to our hickory ones, since they are more certain to retain, for a long time, the original form given to them; beside, they are lighter and more yielding to the motions of the horse.

VIS-À-VIS, OR LIGHT SOCIABLE.

Illustrated on Plate XIX.

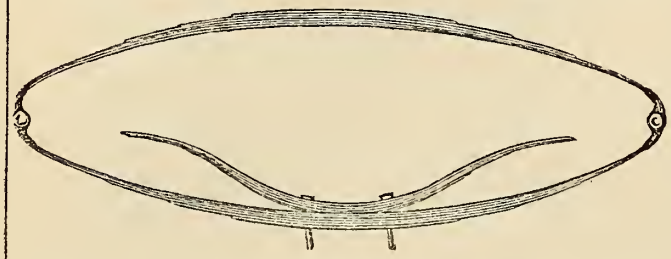
We transfer this sociable to our Magazine, from the *Mercure Universel*, published at Paris, France. It was originally designed for the young Prince Imperial, and is very light and airy. The body is a plainly constructed affair, consisting mainly of a bottom-side, bent in one piece, with pump-handles front and behind. The back-

quarter is formed of osiers in basket-work, and the front seat without paneling. The third seat is an "institution" peculiar to both Paris and London, but seldom seen in America. Slightly *Americanized*, it would be made very convenient for many purposes.

Sparks from the Anvil.

AUXILIARY SPRINGS.

Many deviees have been resorted to for obtaining a spring calculated for light and heavy burthens. The one



we here illustrate is of this class, and is the eldest of the kind denominated auxiliary, or compensating springs. This spring has been quite extensively used in American business wagons, with good results; but it is altogether unsuited to pleasure vehicles, being ungraeeful and elumsy in appearanee. A spring much preferable to this will be found illustrated on page 151, in vol. ii. of this work. The objeet, in presenting this engraving, is that the reader may plaee the two designs in contrast, for study and improvement.

THE COMPOSITION OF STEEL.

M. Fremy, in the sitting of the Academy of Sciences, of the 10th June, resumed his remarks on the eomposition of steel. He said the iron of eommeree eontains .995 of iron, and .005 of foreign substances; steel, .992 of metal, and .008 steel eompounds; east-iron is formed of .95 iron, and .05 of different bodies. Thus, the eementation of iron only gives to the metal .003 parts of steeling eomponnds, whilst puddling to make steel should take away .042 parts of foreign matter, leaving .008 of steel-produeing eompounds.

The proportion of substances which produee steel is so small, that the most talented analyst cannot be certain to ascertain them with precision—besides, the same element may be found in steel in two different shapes—like carbon, which exists in cast-iron in the state of graphite and combined carbon.

I believe steel to contain nitrogen under two particular states: in the state of nitride of iron, that can be decomposed without destroying the properties of the steel, and in the state of a carburetted combination, truly steelifying, from which the nitrogen cannot be eliminated without changing the character of steel. I have found that eementation is not produced by carbon alone, but by the action of two bodies upon iron. These two steel-producing elements would be carbon and nitrogen, or two other bodies bearing a chemical analogy to them.

Steel is not a carburet of iron, and yet in certain cases a simple carburizing action can convert iron into steel. This fact, misunderstood, has given rise to all the objections which my communications have produced. One point of my researches has been forgotten, viz., that the operation of eonversion is to give to steel the .003 parts wanting to eonversion. If the iron was chemieally pure, it would be necessary for its eonversion to treat it with suitable proportions of nitrogen and earbon; but as this metal is never pure, but contains already steel-converting elements, the cementation is, in some sort, a complementary operation; and following the previous composition of the iron, one ought to vary the nature and proportion of the steel-converting elements. Thus, in steel-making, phosphorus and nitrogen play the same part. If an iron eontains phosphorus, and is strongly nitrogenized, an action, exclusively earburizing, will in the first instanee produee steel. But, as the carbon in excess becomes rapidly the governing substanee, and transforms the steel into cast-iron, it is impossible to convert, in a regular and permanent manner, by submitting the phosphoric or nitrogenie iron of commeree to the simple influence of earbon. But if the iron is previously nitrogenized by ammonia, the produetion of cast-iron is avoided as long as there remains an exeess of nitrogen in the iron; and then steel may be regularly produced with a simple carburizing element.

Carbon and Silica ean replaee each other mutually in the conversion of iron into steel when the metal contains one of these two elements; nitrogen alone, or even phosphorus, will always produee in the metal the appearance and eharaeter of steel. It is well known that many charcoal irons, celebrated for their tenaeity, eontain some thousandth parts of silica—for example, the Berri irons; I have nitrogenized them, by means of ammonia, on M. Despretz's method; by means which can only give nitrogen to iron, I have obtained a true steel. By the aetion of the nitrogen, the silieeous iron lost its fibrous texture, and took a grain eomparable to the finest natural steel. This silieeous steel forges easily, its fibers are elose, and it beeomes hard by tempering. I have nitrogenized iron in the same manner with a compound supplying borax, and I have produeed a steel presenting a eertain analogy to silieeous steel. It will be remembered that Mr. Bousingault discovered the presence of silica in steel. The facts whieh I have just made known prove that it ean really beeome a eonstituent of eertain steels.

I am now studying the aetion of phosphorus upon carburetted, siliceous, and boracie irons, and find already an action similar to that of nitrogen.

In conclusion, the Aeademy will permit me to show them the steeling substanee that, by means of bichloride of eopper, I have obtained from east-steel of the first quality, and to deeompose this singular matter before them. When this body is heated, or submitted to the action of an alkali, abundant ammoniacal vapor is disengaged, and at the same time volatile carburetted products, having a fœtid smell. The steel-producing matter, then, cannot be eonfounded with earbon. In another communication I shall make known its properties and elementary composition.—*London Mechanic's Magazine.*

Carriage Bolts.—We have on hand an assortment of carriage bolts, from the Danamora Iron Company's factory, which we will sell cheaper than can be found elsewhere.

Paint Room.

REMOVING OLD PAINT FROM CARRIAGE-BODIES.

VARIOUS devices have been resorted to, by carriage-painters, for removing old coats of paint and varnish from the panels of carriage-bodies, when such, from the effects of the weather, are no longer endurable, except as a *fine* imitation of turtle-shell. The most popular practice, heretofore, has been by heating flat pieces of iron, and bringing these in close contact with the paint, so as to burn it off. This, however, is a tedious as well as a dangerous operation. It requires much time in heating the irons, and is, besides, trying to one's patience. There is, also, great danger of charring the wood of the panel through the paint. All these drawbacks are completely avoided by the new process we are about to divulge to our readers.

In the first place it will be necessary to provide yourself with a tin lamp, supplied with a cotton-wick and alcohol. To give the reader some correct idea of how the lamp should be constructed, we will suppose we take the ordinary tin can for holding lamp-oil, with a handle and spout, holding a quart, and, after removing the cover, handle, spout, and bottom, we flatten the top of the can so as to insert properly a wick, say two inches wide, and three-eighths of an inch thick, and then supply the flattened bottom with a new oval bottom. You then have the lamp—with this objection: you do not want any holes to the lamp, except at the top for the wick, and one near the top on the side, with a close stopper, for feeding the lamp with alcohol. A lamp, from our description, can be made by any tin-smith of the smallest ingenuity, and, being made *flattened*, can, with its lighted wick of two inches in width, fed with alcohol, be the more conveniently brought in contact with the surface of the panel. Next, provide yourself with an inch and a half bench-chisel, or a sharpened leaf of spring-steel, and two sharp-pointed *wooden* instruments of hickory, or some other hard wood, one shaped to a concave and the other to a convex molding. In removing paint from the moldings a gouge might cut, whereas a wooden instrument would only remove the paint, leaving the molding perfect as when first put on.

With the above preparations we are ready to go to work. We now bring the lighted lamp (held in the left hand) in contact with the paint, commencing at the lower side of the body, and (holding the chisel in the right hand), after the flame has—say in four seconds—heated the paint so as to soften it, immediately remove a portion *while hot* about two inches square with it. This process, repeated, will in a short time enable the operator to remove all the paint *in scales*, and leave a surface of lead-color (after sand-papering), about as perfect as when first spread upon the panel. All is now ready for repainting, as with a new body after the coats of rough-stuff have been rubbed down. If any of our readers can, *in their way*, beat this process, we would like to hear from them.

BENZOLE IN MANUFACTURING VARNISHES.

VARNISHES have become a very important article of commerce, and any real improvement in their manufacture must be received with pleasure by our readers. Without our indorsing all we are about to give, we leave the matter with the experimenters. We are told that very superior varnishes are made with a solvent composed of highly rectified alcohol and benzole, in place of alcohol singly, as has been the custom. The alcohol must be of the purest quality, and mixed with benzole in equal proportions. These should be distilled together, with seven ounces of caustic lime to every gallon, and the gum resins reduced to very small pieces, before being fed into the solvent.

Different varnishes are made with alcohol and gum-resins—benzole solvent:—(1.) For carriage varnish—copal, 28 oz.; amber, 8 oz.; anime, 4 oz.; camphor, ½ oz.; *solvent*, 1 gall. (2.) Varnish for external use—copal, 28 oz.; amber, 4 oz.; anime, 4 oz.; camphor, ½ oz.; *solvent*, 1 gall. (3.) Furniture varnish—copal, 28 oz.; shellac (bleached), 8 oz.; olibanum, 4 oz.; camphor, ½ oz.; *solvent*, 1 gall. (4.) Picture varnish—copal, 20 oz.; damer, 12 oz.; mestic, 8 oz.; *solvent*, 1 gall. (5.) White hard varnish—copal, 8 oz.; mastic, 16 oz.; sandarac, 4 oz.; camphor, ½ oz.; *solvent*, 1 gall. (6.) French polish—shellac, 32 oz.; *solvent*, 1 gall. (7.) Varnish for prints and maps—mastic, 16 oz.; sandarac, 16 oz.; Canada balsam, 4 oz.; *solvent*, 1 gall. (8.) Varnish for iron (to be applied hot)—resin, 12 oz.; sandarac, 16 oz.; seed-lac, 6 oz.; *solvent*, 1 gall.

Preparations of lacker—(1.) Sandarac, 26 oz.; shellac, 6 oz.; turmeric, 6 oz.; gamboge, 1 oz.; *solvent*, 1 gall. (2.) Seed-lac, 18 oz.; amber (fused), 6 oz.; gamboge, ½ oz.; dragon's blood, 1 oz.; saffron, ½ oz.; *solvent*, 1 gall. (3.) Seed-lac, 8 oz.; copal, 4 oz.; sandarac, 12 oz.; turmeric, 2 oz.; aloes, 1 oz.; gamboge, 1 oz.; dragon's blood, ½ oz.; *solvent*, 1 gall.

ORIGINAL ORNAMENTAL DESIGNS.

Illustrated on plate XX.

No. 1.—THE water-vase may be gold, shaded with raw and burnt sienna, or white shade with ultramarine and Vandyke brown. The water and spray of the fountain, silver white, shaded with ultramarine and verdigris. The flower-vase, some transparent color to imitate glass. The flowers to imitate nature. The scrolls should be lemon yellow, shaded with deep chrome and ocher, and touched up with white. The birds, vermilion and carmine. The cords and tassels, gold color. This is one of the prettiest

ornaments for the back panel of a buggy that I have ever used. If well painted it is "hard to beat."

F. W. Bacon.

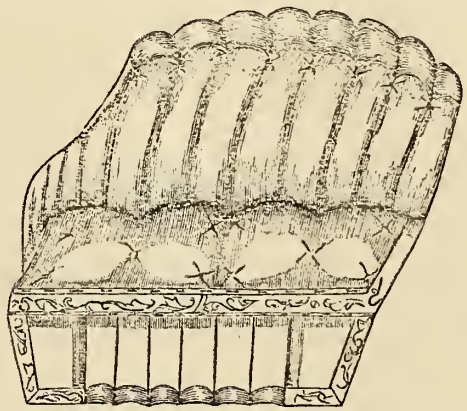
No. 2, is a scroll, drawn tolerably large; it is a very easy figure for new beginners. It looks well laid with gold leaf and shaded in a proper manner; or it looks well painted in relief. I shall not say what colors to use, as it always make a difference as to what color the ground-work is. Geo. P. Tinker.

Stitching Plates.—To gratify our country friends we intend to give a stitching plate in each of the next two months' issues of the Magazine, and to furnish the usual number during the year.

Trimming Room.

FRENCH DESIGN FOR TRIMMING A PHAETON.

This design for a gig, or a phaeton, we copy from our French cotemporary. It varies but little from the design



we published on page 152, volume Three. It is a modified form of the escallop-back, very easy and comfortable. Cloth makes the most approved linings for this style of trimming.

TASTE REQUIRED IN CARRIAGE-TRIMMING.

No branch of carriage-making presents a better opportunity for the exhibition of taste than that of trimming. And yet how frequently do we see it carelessly displayed! While one workman arranges the folds of his cloth or leather linings with the most systematic precision and neatness, another *throws* in his linings with the greatest *negligè* and confusion—in fact, with taste run crazy. There is really more difference in the workmanship of any two men, taken indiscriminately from this branch of trade, than in those of any other department of carriage-making, and which, we think, might be remedied by a little more attention to the study of neatness and order.

To finish a neat job, richness in material is requisite; but a comparatively nice one may be obtained by judicious arrangement in trimming. In trimming both open and close carriages, our countrymen have not hitherto shown that taste which has been so conspicuously displayed in some other branches of mechanical skill among us. We often find a close carriage with dark linings. This is decidedly conflicting with good taste and judicious practicability. These, in a close carriage, should be of some light color, and, in an open one, of darker complexion. The reasons for this are obvious. Something in the close carriage is needed to neutralize the darkness produced by the "head," or top-covering; and the open one, exposed more directly to the atmosphere, not requiring this, yet needs something not easily fading to preserve its beauty as long as possible. We notice, among our country friends, in some localities, where gaudiness in lining is in vogue, that they often use laces in which red predominates to buggies trimmed with black, and other equally fantastic displays. Now this is all wrong, and in direct conflict with good taste. We are willing to concede—as, doubtless, is the fact—that some of the *idiosyncrasies* of which we complain are due to the want of facility in procuring what is proper, by reason of the distance from a market where only they can be obtained; but, in many instances, this anomaly in taste is chargeable to carelessness somewhere—either in the workman or his employer.

The New York Coach-Maker's Magazine.

OCTOBER 1, 1861.

E. M. STRATTON, Editor.

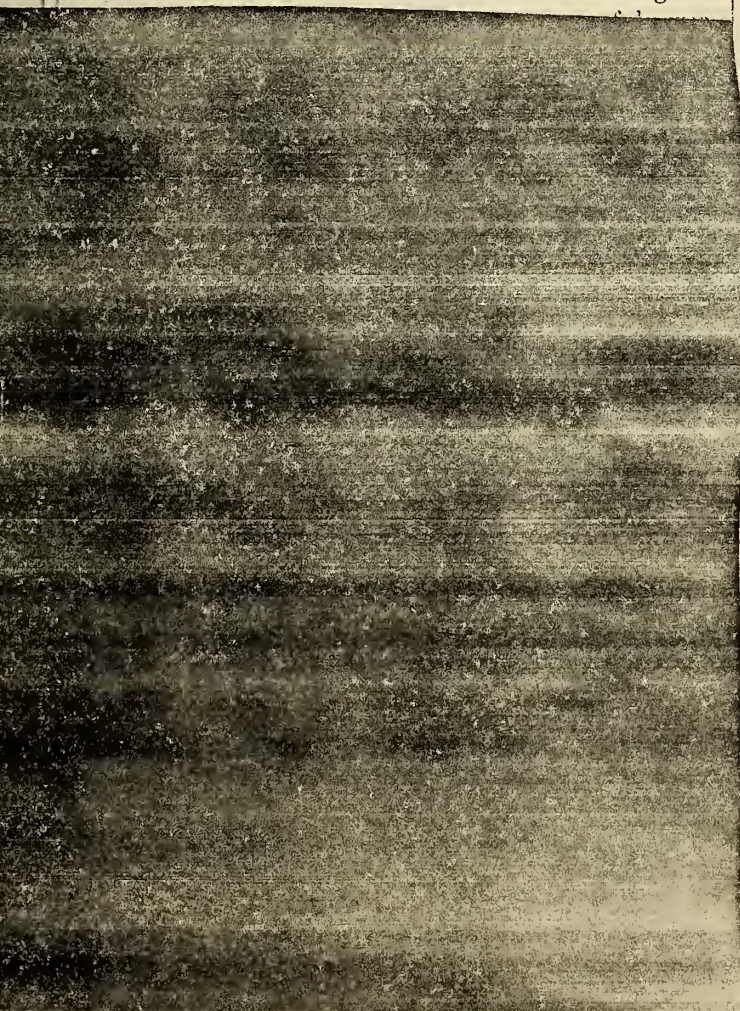
TO READERS AND CORRESPONDENTS.

Bound Volumes *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

Covers, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

☞ *All letters directed to this office on business* not *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* not *complied with, no attention will be given them.*

☞ Having, in our last, announced that number Five of this volume would not appear before November, an explanation for our earlier issue would seem necessary. In view of the hard times among all classes of men dependent upon the business of carriage-making for a livelihood, some of our advertisers had advised our making the



trade, knowing that a good man is worth at least two ordinary ones. They hear that A., who has an engagement in Mr. C.'s shop, is a superior workman, and they must secure him for their shop, if possible. Ashamed to visit Mr. A. in person, still they are mean enough to depute some confidential employee of theirs to do up their *dirty work* by calling on him during business hours and offering him higher wages and a steady job if he will leave. Probably A. was already under obligations, by promise and principle, to stay six months longer where he is; but, too frequently, he cares nothing about that; the "ambitious" firm offers him high wages and large promises, and, unless the *old* boss will make a *new* bargain, and increase his wages, too, he leaves immediately. The contract was for a year, and C. has retained his journeyman through a dull winter, at much loss to himself; this, however, is no impediment in the journeyman's way; he has no scruples about doing wrong when it stands in the way of his interests. There are, it is true, exceptions to this rule; but the majority of laboring men *are* just shortsighted enough to bite at the tempting bait, and are left to mourn their folly when it is too late. In nine cases out of ten, the unprincipled journeyman is a greater loser in the end than his employer can be.

It requires some days "to get the hang of a new shop," and, certainly, a strange workman cannot possibly get along with his work as well in his new position as he did in his old situation, for some weeks. Should the new boss not soon repent of his bargain, yet he will only give the extra wages so long as he thinks it for his interests to do so—not one day more. When that day arrives the journeyman *must be sacked*—perhaps in September, at a time when work cannot be had on any terms; a just punishment, from an *unprincipled* boss to an *unprincipled* workman, for their contemptible actions. When these *foolish* workmen become convinced of the fact that human nature is the same among all classes of men, they may discover that where higher wages are offered, to induce them to leave a good situation at fair wages, *somebody has an ax to grind*, and when *that* is effected they will be *cut* adrift.

We have known cases where a very indifferent workman has obtained a job, and, by careful instruction on the part of his employer, become a very good mechanic, for *the* shop where he is located; worth more, in fact, *there*, than he could possibly be anywhere else. But, in an evil hour, he has listened to the proffers of others; imbibed the vain idea that he cannot be surpassed in mechanical abilities anywhere; left, and in a new situation did not meet the expectations of his new boss; been discharged in a few days, and then thrown out of work for a long period. All this might have been avoided with a little judicious reflection on the part of the employee.

It is painful to witness the inconsistencies of some

employers. They have no scruples about seducing away the hands from a neighbor's shop; but, when the same thing is practiced on them, it becomes a dreadful crime *in their estimation.* We have seen them almost frantic under such circumstances, for it is a notorious truth that *ambitious* men are *notoriously* sensitive, when anything crosses them. The golden rule, "Do unto others as ye would they should do unto you," is not in *their* moral code. Not acting from principle themselves, such must not be surprised to find a plenty of equally unprincipled opponents to meet out to them *their* reward.

In these remarks, we are conscious that we have the best interests of both parties in view—that of bosses and journeymen. Having at former periods occupied both positions, but at present neither, we are more free to criticise, without the risk of being charged with partiality, and hope that this article will have the right effect in the right direction.

We want to impress upon the minds of artizans that, when they are getting ready pay and fair wages for their labor, they ought to be contented where they are; and on the minds of employers, that it is the meanest kind of business to be sneaking around the shops of others, *stealing* away the hands, whether it is done by proxy or in person. When a workman comes to your shop for a job, hire him; and should he earn the wages paid him, keep him on; keep him, if necessary, by increasing his wages in proportion to the value he becomes to you, when he is hired for no specified time. When all parties shape their conduct more in conformity with the dictates of justice, we shall find less room for censure, and much less cause for complaint, among business men—among coach-makers particularly.

TWO WEEKS ABROAD.

The editor having made a second visit to the craft—this time along the line of the N. Y. Central Railway—proposes, in this article, to notice some of the incidents of his journey, for his readers' amusement.

On the evening of the 2d of September we took passage on the steamer New World for Albany direct. After a quiet night's sleep on the passage up the Hudson river, in the morning, on awakening, we found the steamer safely moored at the dock, 160 miles from N. Y. City. Our first duty was to call upon our friends, Messrs. Jas. Gould & Co., Messrs. Long & Silsby, Messrs. Kingsbury & Whitehead, Messrs. Guardiner & Selkirk, Messrs. Hubbell & Johnson, and Mr. P. Winne, all of whom appeared glad to see us, and disposed to further our interests by increasing the circulation of the Magazine. In some of these shops we found business somewhat active; but the blighting fruits of a civil war among us were plainly to be seen. In Troy matters did not much improve, although Messrs. Lown & Horton and Donohue & Birge—the latter successors in the shop formerly occupied by Mr. Chamberlin—were in good spirits, and with as "great expectations" that ours is a great country as that, when our present troubles are over, carriage-making will be a great business. At Schenectady we called upon Messrs. Shaible & Butler, whose shop is the only one of any consequence in that place.

At Little Falls we were happy to make the acquaintance of our old subscriber, Mr. C. Benedict, and also of the Messrs. E. & G. Burrel, who have erected a new shop in the village. This place is chiefly noted for its cheese manufactures, and, in consequence of the great rebellion in the Southern States, the shipments made there the last season have proved a total loss, casting a gloom over the place, which reacts upon the interests of carriage-building very seriously. From Utica, where there are several shops, and of which we have previously spoken, we took stage for Whitesboro', a very pretty place, boasting of two carriage shops. On the way thither, we had a fine view of the Valley of the Mohawk—probably one of the finest views of river scenery, hamlets, wood and dale, to be found anywhere. On the great canal, which, as the reader knows, winds along through this valley, we had the first sight of a canal-packet propelled by steam, and a grand sight it was to see how great was the improvement over horse-power. We see no reason why steam should not be more generally adopted on our canals, and wonder that the old-fogy horse-power was not abolished long since.

Considerable carriage-making is done at Oneida, but, at the time of our visit, the drum and fife, playing at the head of an "awkward squad," monopolized more attention than any other business. One fellow, with a trophy from Secesh dom, where he had captured it, strutted around with it slung to his shoulders, with the highest patriotism. By the way, this same knapsack, made from rubber cloth, was the best representative of everything pauperish one can conceive, and scarcely worthy of the chivalric F. F. V.'s—a mass of rags and tatters, showing that the munitions of war among them are *below par.*

In Syracuse we came across an old fellow-apprentice, Mr. J. S. Hoyt, who, it gives us pleasure to here state, has had a good business the entire season. Messrs. Dunbar & Edwards, in the same place, occupy a large establishment, and have done an extensive business. At Skaneateles, we found an esteemed friend, Mr. J. R. Gilman, whose gentlemanly attentions we hope to reciprocate hereafter. His, and the shop of Mr. Packwood, are the only two of any consequence in Skaneateles. From this place we took stage to the Junction, and from thence, by private conveyance, to Jordan, on the northern branch of the N. Y. C. R. R., and found that "Jordan was a hard road to travel;" indeed, we were assured that the poet had this same *road* in mind when he wrote the line

above quoted. With a cross between a cart and a lumber-wagon for our vehicle, the skeleton of a horse, and a genuine Yorkshireman, "seven years in this country," for our Jehu—*four miles for twenty-five cents!*—a fellow-traveler and myself enjoyed more real fun than could have been had in any other form for five dollars. The apology for a horse, when he reached the foot of a hill, like the quaker's we hear of, *was there!* and it required the constant use of a gad in Jehu's hand to move him. It seemed as though our "whip" was fearful that his passengers might have occasion for complaining at the tardiness of his "hoss," so he belabored the beast most unmercifully to quicken his steps, until—for the benefit of the animal—we intimated to the biped that such treatment might result in his mare becoming mad and running away with us, and thus tragically ending our journey, The fellow took the whole thing seriously, and, in his simplicity, faithfully assured us there was no danger to be feared from that source!—a point we had no disposition to question in view of previous experience.

From Jordan we took the cars for Palmyra, a very pretty place, in Wayne Co. Here we tarried with our friend, Mr. C. Seeley, over the Sabbath. This gentleman is an ex-carriage-maker, at present keeping a store for supplying materials which enter into the construction of carriages, and which circumstance we would remind our friends in his vicinity of when purchasing their stock. On Monday morning we left for Rochester, but found the carriage-makers there scattered and disheartened by reverses. We hope, however, to yet meet them under more favorable circumstances, for they have always proved themselves our warm admirers and constant friends. We had promised ourselves that, in case we should ever visit Rochester, we would call upon and make the acquaintance of our brother editor of the Rural New-Yorker—and we did call, and such a reception! If you want to find a gentleman, lively, amiable, and agreeable, just visit, as we did, D. D. T. Moore, Esq., and come away with the impression that in him is personified the best traits of the fine *young* American gentleman. Long may he live! After taking a look at the falls, from the Genesee Valley—and, by the way, those who have never seen Niagara will find a treat here—we took leave for Albion. From the shop of Mr. Sears, the only one of consequence there, we hope to have a club subscription to the Magazine.

Our next movement was for *the* falls—the far-famed Niagara—from which we took a peep into Her Majesty's dominions. This was not our first visit, and it was well for us that such was the case. No sooner had we set foot on *terra firma* than we were beset by harpies of the "whip species," clamorous for our custom in a ride to the *sights* thereabouts. One persistent fellow, in particular, followed us long after we had shaken off his comrades, insisting that he "just wanted to make his dinner out of us—would take us around Goat Island for ten cents," &c. In our dilemma we hit upon a deliverance—we told him we were an editor; the way he "scooted" was amusing, thinking, probably, that our pocket had lost all its attractions, as far as *his* dinner was concerned,—to us a happy conclusion.

The chief objects of traffic around Niagara is the sale of Indian bead-work and other ingenious fancies, the productions of a remnant of the Tuscaroras. At the corner of one street stands a bazaar, figuring as the "Six-Nation Indian Store;" opposite, another known as the "All Nations' Indian Store;" and another in the vicinity is called the "International Indian Store," chiefly under the direction of "the white skins." As these falls have been often described, we will only state that this year visitors are few indeed, and that these are outnumbered by the squaws, who, with their "papooses" secured to a board, are lounging about the grounds endeavoring to sell their trinkets. The only contented *animal* we saw was a tame, three-months-old raccoon, which his master, an Englishman, assured us had, by his *good breeding*, won the gracious attentions of the Prince Napoleon on the day previous—the "good breeding," as far as we could discover, being altogether on the side of the coon. Carriage-making in this place is a dead letter, and our only object in visiting the place was once more to look at the great natural curiosity.

Our next movement was for Buffalo; and the only good shop in that extensive city is the one occupied by our friends, Messrs. Harvey & Wallace. Here we have, for four years, had a large club of patrons, which we take as highly complimentary, after finding that the work in this shop is of the finest and best description. In Buffalo the traveler will find "runners" whose impudence is even greater than that displayed by the jarvies around Niagara. Not content with insisting on knowing where you are going, they dog your steps, after being ordered away, under the pretence of showing you the road to a depot, and then insult you unless you pay for their intrusion. This we actually saw tried on a fellow-traveler in our visit, by a runner whose name we could not ascertain at the time.

The next day we left, at 4 A. M., for Attica, where the boss of the best shop in the place *had the enterprise* to offer us two dollars for a year's subscription, and which we *had the courage* to refuse, determined never to go there again—until the war is over. We expect he will obtain the premium at his next County Fair.

A visit to Pen Yan afforded us much pleasure, and the kindness shown us by Mr. Parks will ever be kept in mind by us. This gentleman highly prizes our Magazine, and we must say that, in many respects, his carriages closely resemble the finest New York city work. Long

may he be spared to adorn our profession! Penn Yan, in good times, is an extensive place of carriage-manufacture. A flying visit to Geneva, to our friend Baird and others, on our return, and afterwards to Auburn, calling upon Messrs. Hayden & Letchworth, who deal extensively in carriage and harness hardware, we then took an express train for home, which we reached after ten hours' riding. Although times with the craft are generally dull, yet the object of our visit was satisfactorily accomplished; and, when we call again upon our friends, we hope to see them with cheerful hearts and smiling faces.

LITERARY NOTICES.

The *Atlantic Monthly*, for September, is a capital number, fully equal to any that have preceded it. Messrs. Ticknor & Fields announce that they intend to spare no exertions to maintain the high literary position it has gained. With this end in view, they are presenting to the reader a series of articles of a political nature, discussing the great questions of the day, in keeping with the history we are now making, as a nation, imparting to its pages additional variety and freshness. We always welcome this work to our table with delight, and are happy to find it still lively and prosperous. The paper on the Shakspeare Mystery alone is worth the cost of an entire year's subscription. Boston, published by Ticknor & Fields, at $3 a year.

Godey's Lady's Book, for October, has already reached us. How he manages to give so much reading for so little money, is a mystery which can only be explained by a large circulation. His Lady's Book is the only one worthy of the name published in America. It is the ladies' text-book and universal favorite, and the best "peace-maker" in a household. L. A. Godey, Phila., $3 per year.

Our witty neighbor, *Vanity Fair*, maintains its vivacity and freshness amid the din of war, the effects of which has been to kill off so many of our exchanges. Its loyalty is undisputed, and its engravings and literary contents unsurpassed by any similar publication in the whole range of book-making. Published at 113 Nassau St., N. Y., at $3 yearly.

We have announced the *Carriage-Builder's Art Journal* as being dead. We are happy to say it was merely *in a trance*, from which it has emerged after a few months, under the nursing of a new publisher, and we hope that its "transition state" will have improved its manners in many respects.

EDITORIAL CHIPS AND SHAVINGS.

The World's Fair in London.—English journals state that the International Exhibition of Industry for the coming year promises to be greater than the first, held in 1851. The application now made for space by British manufacturers alone, if all were granted, would require a building three times the size of the one now in course of erection. Congress, at its late extra session, appropriated $2,000, in order that the President may take measures to insure a representation of the United States at the World's Fair next summer. We do not believe that much will be attempted by Americans at the second exhibition, but, should any display be made, it should be made creditable and worthy of a great nation.

Speculating with "Uncle Sam."—It is stated that a manufacturer in Brooklyn, in anticipation of a ready sale, made up a quantity of war wagons, which he hoped to sell the Government. He however was told that Uncle Sam had no need of wagons in this campaign, as he intended to transport everything by railroad and steamboat. The poor wagon-maker went home with a heavy heart, concluding that he was stuck with his wagons. Not so, however. Soon afterwards some *speculating* contractors of the War Department came along, and took all he had finished, and wanted more. It is understood that these Government officials pocketed thirty dollars from each wagon's sale, in the shape of over-charges. Verily, some men's patriotism is just as deep as the pocket; not a bit deeper.

Taxing Our Carriages.—The Committee on Ways and Means, now assembled in Congress, have prepared a bill, among other things, for taxing pleasure carriages; the amount of the tax to be proportioned to the value of the carriage; those valued at $50 are to be taxed $1; those exceeding $50 in value but not over $100, a tax of $4; above $200, but not exceeding $400, a tax of $16; above $500, but not exceeding $600, a tax of $22; above $600, but not exceeding $800, a tax of $30; above $800, but not exceeding $1000, a tax of $40; above $1000, a tax of $50. Business wagons are to remain untaxed. This, unfortunately for the trade, must have the effect of rendering carriage-making still more dull, if possible, than it now is. [This article was crowded out of our last number, but, being in type, we now insert it as a part of history, although the bill did not pass.]

A Carriage-top War Dance.—It has seriously been charged by Europeans that our carriages are too slightly built for doing good service. We hope the testimony of W. H. Russell, L. L. D., Barrister at Law, and special correspondent of *The London Times*, to the contrary, will set this matter right. He says: "At Holly Springs, where a rude breakfast awaited us, the warriors [secession soldiers] got out on the top of the carriages and performed a war dance to the music of their band, which was highly creditable to the carriage-makers' workmanship." Although charged with "blowing," we have never claimed more for our superior workmanship than this English traveler accords us. Only think of it—an improvised ball-room dance on the top of an American carriage, *and the only break down* about it was a dance of that name!

War-Wagon Contracts in Ohio.—According to the *Cincinnati Gazette* the following proposals were lately made to the United States Government for building fifty war-wagons in Ohio. Wm. M. Taylor, Columbus, O., ten at $105; conditions, one month. Ellifitz & Thompson, Wheeling, Va., twenty, at $90, according to specifications. Ball, Ward & Co., Newark, O., twenty, at $85, according to specifications. Busby, Little & Co., Wheeling, Va., twenty-five, at $73, at Wheeling, within twenty days. The same parties engaged, also, to do the same job, at the same price, within a week, if required. Peck & Pringle, Columbus, O., ten, at $84.75, and ten at $90, according to specifications. Hall, Brown & Co., Columbus, O., fifty, at $89, twenty-five within thirty days, balance in sixty. Newark Machine Works, Newark, O., ten, at $89, according to specifications. Charles L. Southwick, Columbus, O., forty, at $73, according to specifications. Wm. Spiekler, Dayton, O., fifty, at $75, according to specifications. C. R. March & Brothers, Lebanon, O., twenty-five, at $75, according to specifications. John McElroy & Sons, Delaware, O., ten, at $70, according to specifications. The contracts were finally awarded to John McElroy & Sons, ten, at $70; to C. L. Southwick, forty, at $70 each; pretty cheap, we think.

The New Ambulance.—The Government, for the present war, seems to have adopted a new style of ambulance, hung on only two wheels, and very light. The body is made fifty inches wide, and is divided into two compartments longitudinally, with a door for each at the hind end. The driver's seat is in front, separated from the body with an adjustable top. The body is hung upon four light, elliptical springs, resting on the hickory shafts; a bed-frame with rollers, to facilitate the ingress and egress of the wounded soldier, on four other small springs, is fitted into each compartment of the body, railroad fashion.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

*** To Inventors.—Persons who have made improvements in, or hold the right to dispose of, inventions relating to carriages, will find this Magazine the best medium through which to advertise their patents. It is taken by, and has a very large circulation among coach-makers in every State of this Union and the Canadas, and a respectable circulation in England. The terms, which are very liberal, will be made known by letter, to correspondents, when directed to the Editor.

July 9. Improvement in Thills for Vehicles.—J. W. D. F. Moon, of Coventry, N. Y.: I claim the projecting hook or key, *f*, or its equivalent, on the rear end of the thill iron, B, fitted into and passing through the opening, *e*, in the socket iron, A, substantially in the manner and for the purposes set forth.

16. Improved Halter for Horses.—J. E. Marshall, of Westchester, Pa.: I claim combining with the halter-straps, *a a'*, *b b'*, and *c*, the loop, *h*, chin-strap, *g*, eyes, *e f*, loop, *d*, and the neck-loop, *j*, arranged substantially as and for the purpose set forth.

Improvement in Wrenches.—George Meader, of Earlville, Ill.: I claim, *first* the removable-toothed jaws, *c c*, fitted between teeth, *e e*, in the rotating rachet-head, D, as and for the purpose herein set forth.

Second, The spring-plate, J, arranged on rotating-head, D, in the relation to the jaws, *c c*, as and for the purpose herein shown and described.

23. Improved Mode of Attaching Shafts to Carriage-Axles.—C. N. Gage, of Homer, N. Y.: I claim the employment of the jaws, B and C, one of which is movable, and both of which are provided with sections of conical journals, when the same are used in the manner and connection represented for the purpose set forth.

Improved Auger-Handle.—L. L. Pollard, of Worcester, Mass.: I claim the socket, or frame, F, the catch, or dog, C, the thumb piece, or key, D, or their equivalent, in combination with the spiral-spring, E, the handle, A, and the pin, or rivet, G.

30 Improved Bridle-Bit.—A. L. Weymouth, of Boston, Mass.: I claim the use or employment of an expanding bit, arranged, or provided with a rack, pawl, and a spring or springs, to operate as and for the purposes set forth.

Improved Tire-Bending Machine.—Joseph Klepper, of Wooster, O.: I claim the combination of the bottom frame piece, F, and the standards, E E', provided with holes *x x*, and adjustable pin, *g*, when used in connection with the free lever, A, constructed as described, and provided with the loop, D, and set screw, *e*, the several parts being connected and operating in the manner set forth.

Improved Mode of Securing the Spokes in the Fellies of Wheels.—D. A. Johnson, of Chelsea, Mass.: I claim as new, in coupling spokes to the fellies of wheels, at or near the joints thereof, was to support the same by means of the spoke and a metallic band as described, constructing said band with apertures through the inner and outer sides thereof, in the manner and operating as specified.

Improved Machine for Bending Fifth Wheels for Wagons.—Charles Kieser, of Baltimore, Md.: I claim, *first*, the combination of the movable pattern, D, convex plate, B, clamping-plate, C, tapering shaft, E, and sliding clamp, L, all constructed and operating in the manner and for the purposes explained.

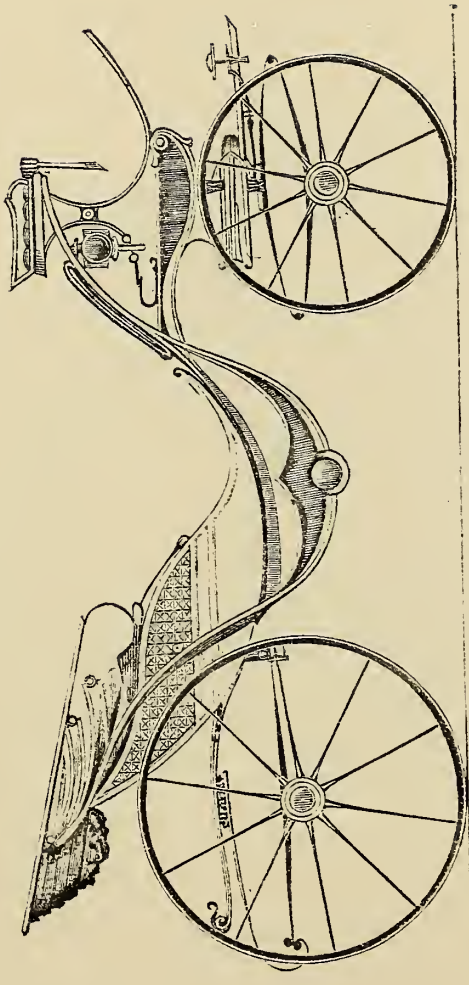
Second, The combination of the hinged-tapering lever, S *e*, stud-shaft, E, and adjustable set, H, constructed and operating substantially as and for the purposes set forth.

Sept. 10. Improvement in Securing Carriage-Wheels to Axles.—Ezra P. Hoyt, of New York city: I claim the combination of the right and left hand screw-nuts, D and E, made and operating in the manner set forth and described.

Improvement in Harness.—Rusel Hazard, of New London, Ohio, assignor to himself and Alexander Porter, of the same place: I claim the combination of the perforated face plates, A', tongued clasps, B *b*, and oblique loops, B, all constructed, arranged, and employed in the manner and for the purpose shown and explained.

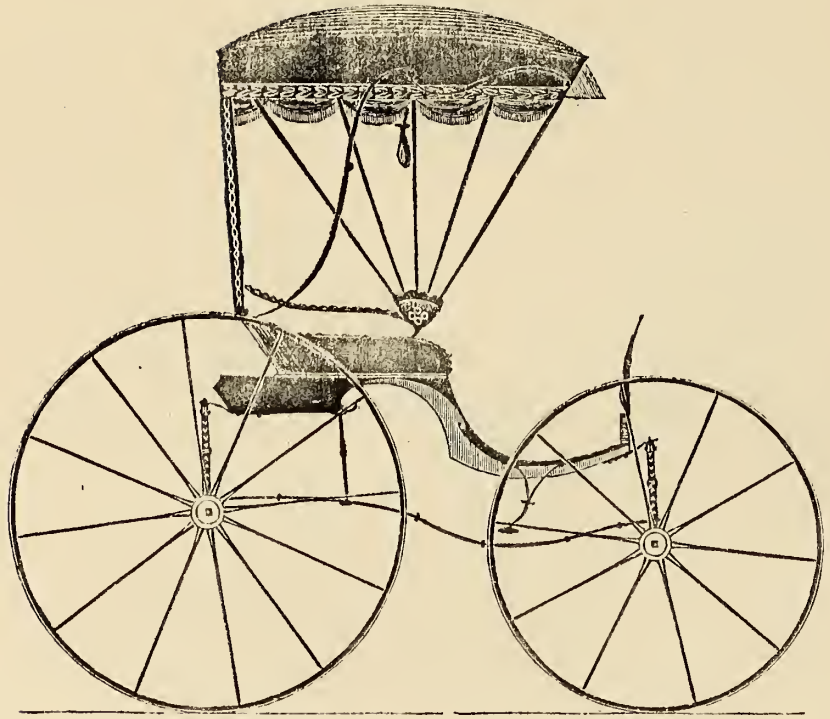
Improvement in Springs.—Albert Bridges, of New York city, assignor to himself and Alfred Bridges, of Newtown, Mass.: I claim the novel bearing spring described as a new article of manufacture, the same being composed of detachable strips, wires, rods, or any other form of springs, E, arranged in a circular or polygonal series uniformly distributed arouud a central guide, or slide, A, so as to expand equally in all directions by the bending of the same, and each being so nearly straight when the spring is unloaded that the resistance of the spring to compression shall increase but slightly as the load is increased; the entire structure possessing the qualities and advantages set forth.

I also claim the mounting of a rubber spring, G, within a circular or polygonal series of metallic springs, E, so as to act in combination therewith, and to contribute to the tension and modify the range of the spring, substantially in the manner specified.



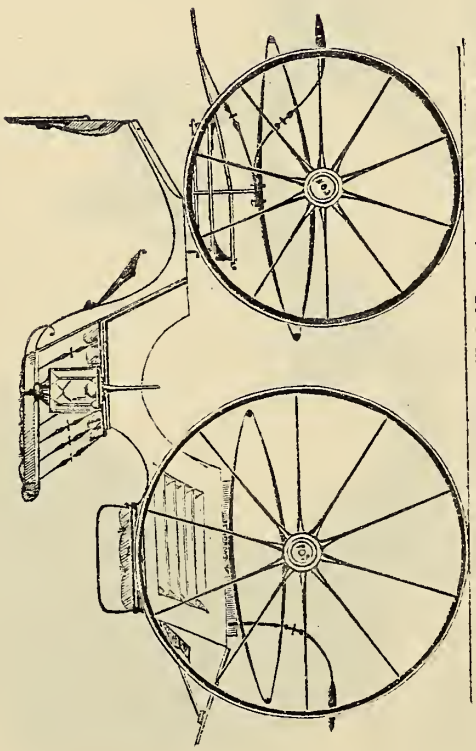
VICTORIA PHAETON.—½ IN. SCALE.

Engraved for the New York Coach-maker's Magazine, from the Moreuré Universel.—Explained on page 96.



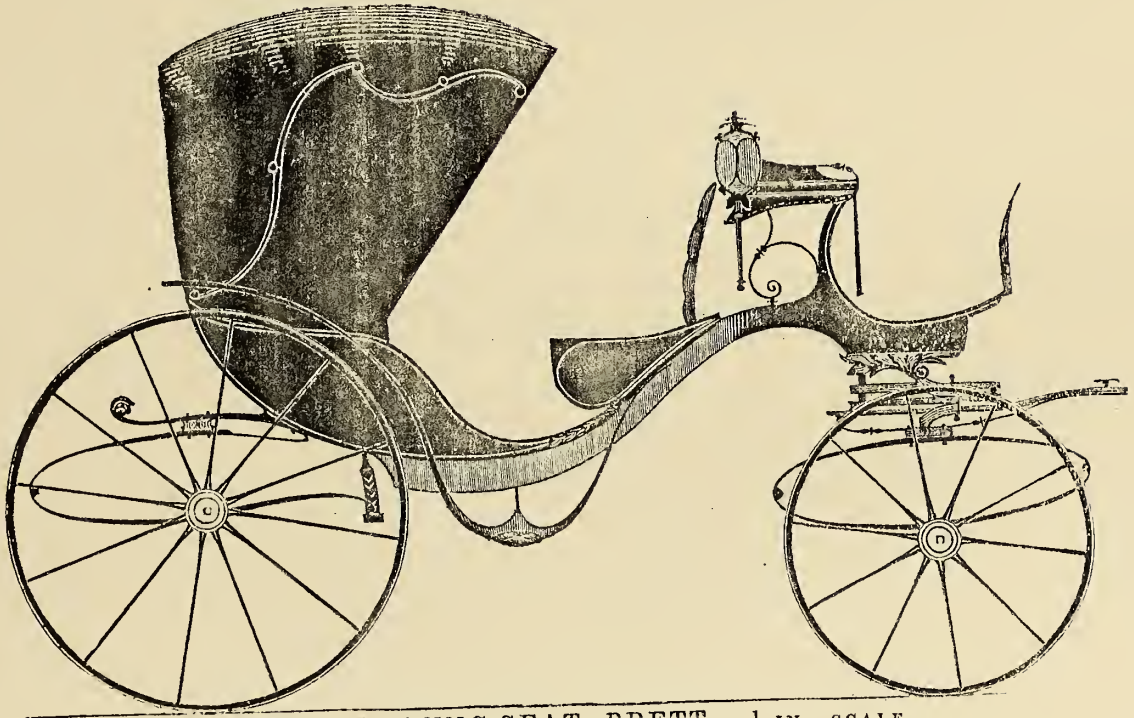
CUT-UNDER BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 96.



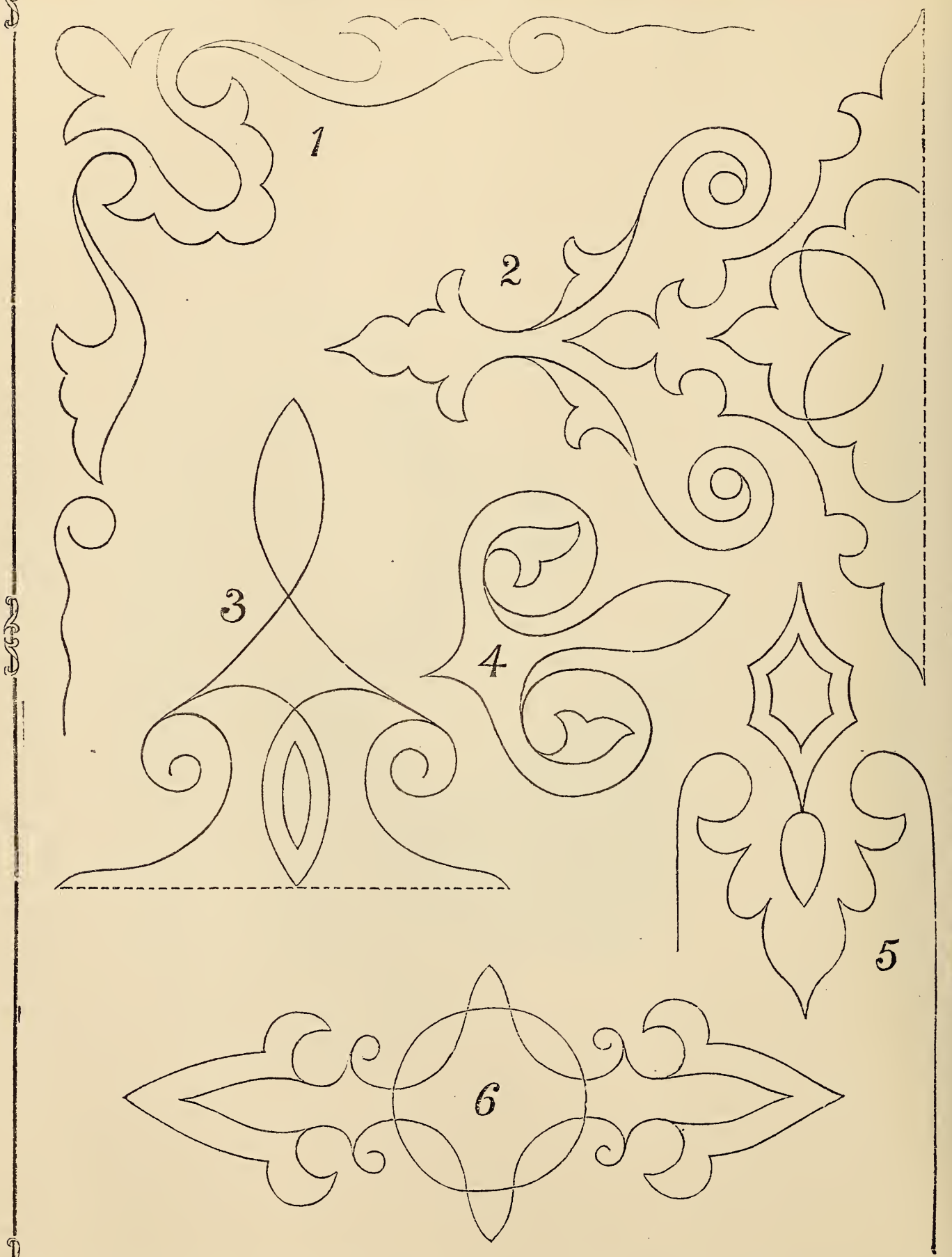
SHAMROCK PHAETON.—½ IN. SCALE.

From Messrs. Atkinson & Philipson, *Newcastle-on-Tyne, Engs., for the New York Coach-maker's Magazine.—Explained on page 96.*



LIGHT SHIFTING-SEAT BRETT.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine —Explained on page 110.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THE NEW YORK COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, NOVEMBER, 1861. No. 6.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

THE ARTIST'S TRUE STUDY.

BY MISS CARRIE CAPRON, WALDEN, N. Y.

Art is a universal language; it addresses the mind, the heart; speaking sometimes by the inspired words of the poet, now by the fascinating strains of rarest melody, and again by reproducing, as with a heavenly hand, the perfections of nature. We hear its voice speaking to us from ages and nations that are past, and it is speaking to us still.

It has been said that "to know art thoroughly we must know its object." It aims at reproducing what God has produced, and creating and developing beauty in all her perfect forms and hues. It ever has been and ever will be cultivated, admired, and loved by the highest intellects of all ages. The grand, stupendous structures that adorn our great cities; the majestic peal of the many-voiced organ; the bewitching sweetness and harmony of verse; the tracing of a lily-bell; or the image of a tiny dew-drop,—each and all come within its scope. It tends to render man more alive to the hidden beauties around him, drawing him from his own sordid self, and causing him to cull from a higher source. Art is not satisfied in merely copying. It must be its own artist; it must create. It seems to seize the very soul of nature, and strives to embody even a higher state of perfection than the present—ever to realize a vision of beauty which approaches nearer to the transcendent beauty and glory of the Creator's touch.

As long as Adam and Eve retained that primeval purity and happiness with which they were first gifted, we cannot imagine art to have existed; all was faultless around them; nature smiled her first fresh smile of beauty upon them; perfection was stamped on every leaf, bud, and flower. Their hearts were fully tuned to this perfect harmony. It was not man's hand, or human genius, that supplied any want. God was their one, sole artist; they needed none other. But when this harmony between the creature and the Creator was marred and broken; when a barrier was raised between God and man, and man no longer lived in perfect innocence,—then he longed for his pristine state of beauty; then human genius was called into exercise; and ever since it has been the highest aim of the artist to approach as near as may be to that beauty which in Paradise was allotted to man in the ideal, or in one's soul.

"Perfect virtue," says Madame De Stael, "is the ideal beauty of the moral world; and there is some similitude and affinity between the impression which virtue makes upon us and that sentiment which is inspired by whatever is sublime either among the productions of the fine arts or in the aspect of the physical world—the regular and graceful proportions of antique statues; the calm and pure expression of certain paintings; the harmony of music; the view of a beautiful landscape over a fruitful country,—transport us with an enthusiasm by no means uncongenial to that admiration to which we are raised by the contemplation of generous and heroic actions."

If we glance from the past down to the present, we see and note the improvement and refinement which art has cast on all. The crude, angular architecture of the early nations the sceptre of art has transformed into harmony of proportion and grace. All irregularities and defects vanish beneath the touch of this magic wand. Poetry, sculpture, painting and music have, through this medium, received one grand impulse, and have been developed into their present attainment of strength and position. As we often behold a landscape rendered more beautiful by the departing sun shedding a flood of softened radiance on all, or as we love to watch the deepening twilight bringing out some feature of the landscape, while it hides others, beautifying as much by what it conceals as by what it reveals, and giving to all a chastened hue, so do we love to look upon those objects which the finger of art has touched, throwing over them a sunset glow or a twilight hue.

The painter cultivates an observation of the most minute objects in nature; it is to him that she opens her casket and displays her hidden gems. He sees the hidden soul of the tiny flower; in each delicate petal, each blade of grass, he beholds the impress, the foot-print of the Creator. A beautiful feather dropped by a bird in its flight would by some be passed by in utter heedlessness, while others would stop to admire its brilliant colors and delicate construction. So are there many who pass on

from day to day, heeding not the beauties that beset them at every step; but the artist, the devotee to nature, stops, admires, and pursues his way again; but the image he carries with him to be reproduced in all the vividness of life when the reality shall have faded away forever.

It is the Michael Angelos and the Raphaels of the olden time to whom we are in a great degree indebted for the position painting assumes among the arts to-day. Their style and conceptions are regarded as masterpieces of the art. Those who have gazed upon their paintings feel they have seen that, the memory of which will ever be retained and cherished by them. Michael Angelo's great forte lay in the sublimity of the object conceived and the grandeur of form—often effecting his purpose by a single stroke of his chisel. Raphael's highest aim—that to which all his efforts tended, and for which he studied, drew and nearly exhausted very nature herself in his zeal to display it—was expression. He desired to produce not always beauty, but truth, nature,—and he succeeded. Yet it is the former of these two great masters who, by his personifications of human life, and even of the Deity, has won for himself that high encomium, "The salt of art."

Of all the arts, Poetry, perhaps, enjoys the widest range. Her powers are limited only when imagination fails to paint the words with reality—to give them the expression of truth. Her aim is to portray the passions, the emotions that belong to every human soul; her influence is not confined to any sect or party. We find the poetry of Robert Burns adorning the meagre book-shelf of the Scotch peasant as often as we see it in the princely mansions of the nobles.

But it is the art of Sculpture that requires the most scrupulous nicety of touch, the most faultless finish. Here is no brilliant hue to lessen defects—no delicate blending of shade—no elegant rhythm of verse—nothing but cold, dead marble; yet beneath the artistic hand of genius this same dead marble becomes imbued, as it were, with the very breath of life. When we forget, in gazing upon the sculptor's work, that no life-blood courses through those veins, that the finely moulded limbs are cold and powerless, that the life-like expression is but the white marble to which the artist has given a soul—when we forget all this—then the desire of the sculptor is achieved.

But the question arises, whence so few great artists? And it is readily answered, when we consider the requisites of art to the perfect artist. He must be an enthusiast; his whole soul must be fired with an ardent love, a passion for his art. He must be willing to work day after day, toil night after night, and year after year, it may be, ere the goal is reached. He must possess a brave heart, toiling not for the love of gain, but solely for the love of his art; having an idea of nature in her most perfect form, undefaced by accident or fashion. He must not err in judgment, power of imagination, form, color, expression, or management of light or shade; he must strive on with unceasing industry unto the end. With such a multiplicity of requisites necessary to perfection, is it strange that the number of our artistic stars of the first magnitude should indeed be few?

And now, having endeavored to give the aim and object of art, "The Artist's True Study" has been told. Yes: he must look first at nature, and then take for his stand-point, not nature as it now exists, but perfection, truth, God; these are his watchwords, by which he hopes ever to reach his end.

The wide, restless ocean rolls on and on unceasingly, ever claiming, ever receiving, until its bounds are set in the farthest shore. There the mighty waves can go no farther, and the little ripples roll gently inland, as if glad they had at last found a resting place, a home. Thus the artist soars on in his ideal—his picture of beauty—up to the very throne of God; but there he can rest; his work is done. Having striven to reach perfection, he can go no farther. "God never made His work for man to mend;" and the same Creator who set bounds to the measureless sea, hath also said to the artist, "Thus far shalt thou go, but no farther." Then, and not till then, does the artist feel that his highest aim, *his* life-study, has been accomplished.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 77.)

TOWARDS the close of the last century, as alluded to at the end of our previous article, pleasure-carriages had taken a variety of shapes, some of these entirely original inventions, others modified forms of the English single-horse gig of 1754, seen in the annexed figure, and some modernized patterns of the coaches and chariots of earlier days. These were now known as Coaches, Chariots, Landaus, Landaulets, Phaetons, Currieles, Whiskies or Chairs, Sociables, Buggies, &c. These were again subdivided adjectively into *plain* coaches, *town* coaches, *traveling* coaches, *crane-neck* and *post* coaches, &c. The Phaeton is of earlier invention than most persons are aware of, being in use as far back as 1760. An illustration of one has already been produced in this journal, and may be found on page 80, Volume Three. It is stated that these "highflyers,"* as they were sometimes called, in consequence of being hung up very high from the ground, were very popular with the sporting young men of that age; and even as late as 1785, His Royal Highness the *fast* Prince of Wales was seen on his way to the Ascot race-course, seated beside one of his fast women, in one. It is stated that a gentleman of the name of Moore, in 1770, invented a kind of coach which was, in truth, an embryo omnibus, and is described as having been "a common coach reversed, containing six passengers, swung between two large wheels nine feet six inches in diameter," and with the driver perched upon the roof, and one horse in shafts, is stated to have carried seven persons with ease from Cheapside to the summit of Ludgate Hill.

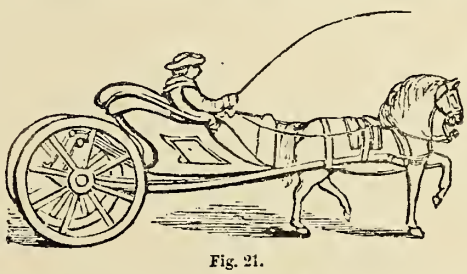

Fig. 21.

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* The term "Highflyer," associated with Phaeton, as the name for a class of carriages, will remind the classical reader of the story, as told by Ovid in his Metamorphoses. The circumstance that Phaeton acted the part of a *highflyer* when he undertook the dangerous business of driving the chariot of the sun, and the story of the fatal result are *highly* suggestive, and undoubtedly originated the designation, "Phaeton," for a particular class of vehicles.—ED.

Mr. Adams, in his recent work on English Pleasure-Carriages, observes that "to sit on such a seat when the horses were going at much speed, would require as much skill as is evinced by a rope-dancer at the theater. None but an extremely robust constitution could stand the violent jolting of such a vehicle over the stones of a paved street." The Phaeton alluded to in our third volume possesses the "solid, substantial qualities" claimed by our friend, the Editor of the English organ of the craft, for their modern-built carriages, but was hung with singular disregard for human life, and at best was a lumbering machine, with scarcely one redeeming, good feature about it. The height and stiffness of the S-springs on which the body is mounted, the clumsy box in front, and the still clumsier one for servants behind, gave no indication of comfort to those who might risk themselves therein. A ladder was required to get into the vehicle, and this, it is said, was sometimes fixed to the side for that purpose. In time, however, these defects were remedied by gradually lowering the springs until they assumed the form we shall illustrate hereafter. To an American, English carriages have, up to the period of which our history treats, presented a serious defect in the low wheels in use. We are pleased, however, to find that our transatlantic friends are at present improving in this respect.

After carriage-building in England had become an "institution," that petty selfishness which seems to be peculiar to the *leading* establishments in all countries began to show itself. The very first attempt at publishing what is called the "secrets" of the trade, met with disapprobation. Felton, who published "A Treatise on Carriages and Harness," at the end of the eighteenth century, seems to have met with opposition from this class, as he "understood that a number of the coach-makers, on hearing of his intended publication, had declared their disapprobation of it in very pointed terms." Thanks to his courage, "he was willing to submit his various statements to their consideration; and, with that view, wrote a letter to twelve of those whom he considered as the principal in the trade" at that time. These, however, *cowardly* kept themselves aloof, and the consequence was, his book appeared. To it our readers are indebted for much of the abstract of matter following.

Felton, in his introductory remarks, published in 1805, says: "The art of coach-making, within this last half century, has arrived to a very high degree of perfection, with respect both to the beauty, strength, and elegance of the machine. The consequence has been, an increasing demand for that comfortable conveyance, which, besides its common utility, has now in the higher circles of life become a distinguishing mark of the taste and rank of the proprietor." Already they had from England began the exportation of carriages to foreign nations. At that early period "more than a third part of the master coach-builders were in fact only harness-makers, whose judgment in the construction of a carriage can go little further than that of a shoemaker; yet these *professors*, aided and supported by the coach-makers, have always opposed, and still continue to oppose, every other tradesman concerned in the manufacture of the principal materials of which a carriage is composed, such as wheelwrights, smiths, painters, carvers, joiners, &c., either of whose judgment must far exceed that of harness-makers, and many of whom possess a knowledge little inferior to the professed builder himself. But thus united, they strenuously oppose every new adventurer in the trade, though ever so well qualified, if not bred a harness or a coach maker and connected with them in this association. They (the associators) have been pleased to dignify themselves with the title of *Brights* and to bestow upon their rivals the opprobrious epithet of *Blacks*. This conduct has an evident tendency to a monopoly, and, of consequence, is a discouragement to the ingenious and enterprising tradesman, whose talents might otherwise raise him to eminence in the profession."

A custom still in use, and which, on the score of honesty, ought to have been abolished long ago, prevailed in Felton's time. He says: "A practice has been introduced, and for a long time continued, that the gentlemen of the whip receive *douceurs* from the tradesmen employed in building or repairing of carriages, no doubt with the original intention of encouraging the coachman to take good care of the carriage and preserve his interest with the employer. It is very likely the zeal and activity of the coachman will, in a great degree, be proportionate to the encouragement given him. Very extravagant expectations are formed by many, which, if not complied with, are sure to draw the resentment of the disappointed coachman upon the tradesman, and, if complied with, he has no other method of reimbursing himself for this very unfair transaction than by charging an exorbitant price for his workmanship; so that ultimately his employer suffers a manifest injury. If the coachman be honest, attentive to his master's interest, and a tolerable judge of his business, he will discover when *any* repair is necessary, and, in some measure, to what extent that repair ought to be carried; but, if swayed by sinister motives, and the tradesman should happen to be of the same complexion, a wide field opens for collusion between the two, *and the proprietor is sure to be imposed upon.*"

We intend to give in this and the next chapter a full detail of carriage-making in England at the commencement of the present century, that the reader may have some *data* whereby to arrive at his own conclusions in regard to the improvements made in the business during the last sixty years. The first draft is that of an ornamented town-coach, which at that time cost about £190 ($920). These were hung, as in this example, on what were known as S-springs, and occasionally the C-spring, just then coming into use. For other carriages, the scroll, the worm, the French horn, the double and single elbow, and grasshopper springs were used, accommodated to the situation in which they were required. From this it appears that steel springs are not quite as modern an invention as some are led to think. A pair of springs for a coach then cost £3 18s., or about $19. In the engraving is seen the Salisbury boot; the hammer-cloth seat, strangely pitching forward, but creditably manipulated; instead of

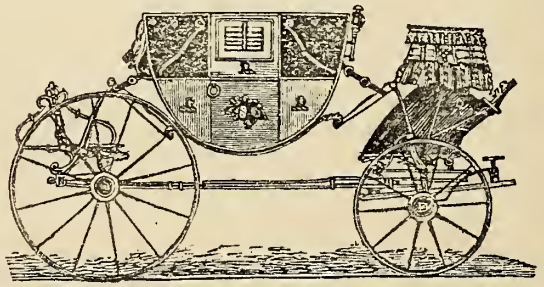


Fig. 22.

glass, blinds to the door; and footman-rack, quite ingeniously constructed. A set of wheels for a coach cost about £10, or $48 50. The hammer-cloth, which was made up of six breadths, containing 5¼ yards of broadcloth, of best material, cost £6 10s. ($31 46), to which sometimes extras were added. The best axles for a coach could not be bought for less than £26, or $125 84.

The next example (Fig. 23) presents the reader with a very good representation of a traveling coach in 1800,

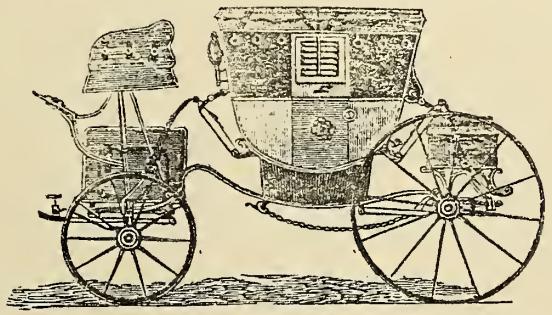


Fig. 23.

which cost about £200 ($968). As these were principally intended for continental journeys, strength and convenience were to be first considered, and plain, strong-built crane-neck carriages preferred, "as the roads on the Continent are very rough, and, in the towns, very narrow; and as there is not much opportunity for cleaning or mending on the way, the plainer and the stronger they are built, the better for the purpose." The great expense of these carriages was chiefly owing to the many conveniences required for the passengers' luggage in that age. Felton's description of this coach will interest the modern coach-maker: "The *carriage* is a crane-neck; strong straked wheels; patent anti-attrition axles and boxes; a raised hind end, with short, plain blocks; a common coach-box with a traveling seat; a platform budget before, with a large trunk within it, and inside straps and laths to ditto; a trunk behind with ditto, and two leather belts; a chain-belt, for security, and an oil cover, for the trunk; the springs covered; a drag-staff [a short pole at the hinder part of the coach, let down, in *ascending* a hill, while the horses rested]; a chain; and a tool-budget for the coach-man's convenience.

"The *body* plain, with a sword-case; lined with second cloth, and trimmed with a two-inch lace, and two-and-a-half ditto for the holders; squabs, or sleeping-cushions, faced with silk; venetian blinds; seat-boxes; Wilton carpet; double-folding steps; the *plating* with composition metal; a ⅝-of-an-inch moulding all around the middle and roof, up the corner-pillars and side of the doors; a set of circles for head-plates; a pair of sword-case frames; a well at the bottom; two imperials for the roof; the *painting*, varnishing, &c., plain; mantles, with cyphers on the door-panels; crests on the stiles; main and check *braces*, with buckles; and French pole-pieces."

The *loop-iron* to all the coaches of that time, as seen in Figs. 22 and 23, were singularly at variance with our modern ideas of what constitutes beauty and elegance in design. The Landau, a carriage in the form of a coach, but with a top to be thrown open in fine weather, was contrived to avoid the expense of keeping two carriages; but the first cost of such vehicles (£186, or $900) forbid their general use; and, besides, *gentlemen* preferred driving for themselves in light, open carriages, as well sixty years ago as at the present time. For country use in summer jaunts these carriages have always been popular in Europe.

(*To be continued.*)

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page* 75.)

As my stay in Gallipolis was prolonged, and the time of my departure seemed to remain an uncertainty, I gradually dismissed the idea of refraining from society, which I had determinately adopted and strictly maintained from the hour I sat out from my old home to the present, and concluded to try and enjoy the sunshine as well as the shade of life. As my friends increased and the circle of my acquaintance assumed more extensive proportions, I was very pleasantly impressed with the sociable and congenial inclination of the community in which I had stopped. The inhabitants in, and for miles around the town, were comprised of good, old-fashioned, substantial farmers, and industrious mechanics, by whose enterprise and perseverance the country had been changed from the rough state of nature in which it lay a half-century ago to the more prosperous and happy one it now is.

In almost every community arrogance lays the foundation-lines of distinction in grades of society, and misanthropy presides over the aristocratic divisions, spurning the coalition of ranks, thus destroying the very sunshine derived from sociability; but I may offer this community as an exception to the general rule, as perfect equality was the only feeling tolerated throughout the country. By the untiring efforts of such is the standard of civilization raised from imbecility and abject ignorance to the towering elevation and vast proportions of human happiness and perfection extant around us. Without the yeomanry—the bone and sinew of civil government—the standard of national greatness would depreciate rapidly.

The country in southern Ohio, and especially along the Scioto and its tributaries, possesses much historical interest; for it was here that the pale face and the red man, in sworn antagonism, bathed their hands in each others' blood, while contending for those beautiful lands which both seemed to claim with equal interest: claimed by one for their original possession, by the other for their prospective civilization. It had been the home and the hunting-ground of the Indian during many long and happy years. Here they had smoked the pipe of peace, and sang the song of war and victory. Here they assembled around their council-fires, where the proclamations of chieftains were issued and warriors incited to deeds of cruel bravery. Here they held their war-dance and festivities, and chanted the dirge of defunct chieftains. Scattered along the hills and valleys were the graves of their sires, held strictly sacred by these barbarian children of the forest, and loth were they to surrender them into the hands of a contending enemy. On the other hand, these lands, so beautifully arranged for the accommodation of man, were intended to be the home of the white man; these vast, unbroken forests, that had been

the hunting-grounds of the savage for years uninterrupted, were now to be swept away by the hand of industry, and, instead thereof, vast fields of golden grain were to mark the progress of civilization. The wild game that infested the country with undisputed right were now to be superseded by domestic herds. Cities were to take the place of wigwams, and steamboats to traverse streams where only the canoe had been known. These valleys, that had re-echoed the war-hoop of the savage, were to be made musical with the voice of approaching civilization. Thus, with the approach of the white man, was inaugurated a bloody and interminable war, in which both struggled desperately for the mastery of the soil and the enjoyment of its future possession.

The tomahawk and scalping-knife were often called to perform their mission of blood and death upon the white man, while the rifle as frequently sped forth with deadly aim the leaden missile to the heart of the Indian. Ohio shared largely of the horrors and devastation universally spread throughout the country during that protracted and sanguine war propagated along the valley of the same name, and which held the early settlers along the frontier in continual fear for the loss of their property and lives by the hand and torch of the savage midnight incendiary. Many a battle not known to history was fought during those gloomy times in defense of the homes and firesides of these brave and fearless pioneers. When the war-shaft of the Indian had been hurled forth, these were among the first to oppose and resent it, and, with strong arm and undaunted will, to fight for the establishment and maintenance of peace and quietude at the hearth-stone. These brave old men have never received the notice that justice claims for them. We have placed the laurels upon the brow of others whose deeds, though they acted under more favorable circumstances, were not to be compared in heroic valor, and have forgotten these old pioneers, who, without the aid of imposing armies or military equipment, guarded and retained our frontier in the midst of a cunning and powerful foe, and thus bequeathed to us the liberty now enjoyed;—but it is hoped they may not be entirely forgotten. *Sic transit gloria mundi.*

There had been a new arrival at the hotel,—so, at least, it was reported throughout the village. The news flew like wild-fire. There was none but knew it, or was not likely to know it, in the shortest conceivable space of time. Morse, with his improved facilities, could not have added to the dispatch it received,—tongue, in this case, being more efficient than electricity. A ragged urchin in the street announced, in a stentorian voice—as if he received a large salary for his trouble, and was trying to give his employer the "worth of his money"—"A feller's cum to the tavern, an' 'ee's got the bigest chist you ever seed, with new clo's an' 'plug-hat' on." A matronly lady, as she passed along, inquired, in a sharp, squeaky voice, "Have you seed the new-comer? a proper, fine gentleman, so I've heard." And thus it went round. Some wondered where he was going, others where he was from. Some speculated upon his probable occupation, others inquired his name, and if he was married or not, and, if not—why? until Webster's entire vocabulary was exhausted in vain surmises and questions upon the probabilities, whys, and wherefores of the case. He had given no one a chance to speak to him, and only a hasty glance was allowed as he passed from the stage to the hotel; consequently these street speculations were all in vain.

According to a long-established custom (the antiquity of this custom is, however, left to the determination of visitors), I found the bar-room, that evening, overflowing with spectators, anxiously awaiting the stranger's return from supper, each eager to obtain the slightest information relative to him.

When anxiety had attained about the highest tenor and the crowd seemed to hang on suspense, the man who had caused so much commotion made his appearance, and to my surprise I recognized in him an acquaintance I had formed in Wheeling. He was a workman in carriage-parts, and a fine, jovial fellow. He grasped my hand, and, with "How are you, Hal?" commenced talking in his easy, familiar way,—every word of which was, however, lost to me amid the tumult and confusion that seized those present, who, simultaneous with myself, had recognized him, and now vied with each other for the privilege of greeting him and saying "welcome" first. I could not understand, at first, why such a distinguished reception should be offered to a stranger in the place, as I thought him to be; but the mystery was soon cleared away, when, in conversation with him that evening, I learned the history of the matter. He had been reared in that section of country; his father, a wealthy farmer, lived at that time within a pleasure-drive of the village. It was therefore very natural, after being absent for a number of years, for his friends to manifest a strong desire to welcome him back to his old home. The slight acquaintance formed during my brief stay in Wheeling now began to expand into a friendship of a very intimate nature.

The next morning my friend, Lewis Sterling—for such was his name—accompanied by a few of his friends, started for his country home; not, however, without leaving a pressing invitation with me to visit him at an early day. Taking advantage of the fine weather that prevailed, I occupied a portion of my time in riding about, viewing the country, and receiving the hospitalities which were abundantly afforded and liberally extended wherever I went. My Irish friend often accompanied me on these excursions, rendering the time pleasant and making plenty of fun for every crowd he happened to be in with his foreign brogue, cant sayings, and spicy jokes.

Reining my horse, one fine morning, in a different direction from any I had before pursued, I had the satisfaction of making some new acquaintances, and, at the same time, of passing through a portion of country I had not before seen. I rode on for an hour or two in perfect solitude, inhaling the pure, refulgent, autumnal atmosphere, laden with the perfume of falling leaves and decaying flowers, which were fast forming a beautiful carpet of bright and gorgeous coloring over the path before me. My mind ran back through the pleasant scenes of the past, feasting upon the comforts and happiness of other days, and reflecting the enjoyments of my youth in the mirror of the future, inspiring me with new energy to press forward through every impending obstruction,—which is indispensable if we would fight the battles of life successfully. There is a vast amount of actual enjoyment derived from one of these bright, dreamy reveries in solitude, where one's mind can run back in sweet recollection of past pleasures, undisturbed by the hurry and noise of a busy and inquisitive world. One feels better

afterwards—more like breasting the storm of life—better prepared to undergo toil and labor, and to endure the misfortune that may await us.

Taking my watch from my pocket, I was surprised to find it near twelve o'clock, the hour I had anticipated returning to the hotel, but, instead of that, I was several hours' ride away, in a part of the country of which I knew nothing. There was no habitation at hand where I could procure refreshment for myself and horse. However, after pushing forward a few minutes, a neat white cottage, with elaborate cornice, revealed itself among a cluster of fine trees, where, half hidden, it reclined in such sublime beauty that the observer is instinctively prompted to offer an involuntary remark of admiration at the taste displayed in the general arrangement. A broad lawn fronted the house, the whole of which was ornamented in the most complete manner with the various plants and trees in modern use. Conical, serrated flower-mounds, sprang up here and there, at equal space, with broad gravel-walks running between, studded with ornamental shrubs. Trees of native and foreign production, planted with an eye to modern taste, entwined their branches together overhead; some with ever-green foliage as fresh as in early spring-time; others, nuciferous in their nature, with leafless branches bending under their weighty production of nuts and fruit just ripening for use. The appearance would proclaim it the home of peace, happiness, and love.

While my horse assuaged his thirst at the great trough, filled with pure water from the fountain at the roadside, I proceeded down the gravel-walk toward the house, admiring, as I went, the unceasing manifestations of modern taste exhibited in the general arrangement of things around me. My presence was soon announced by a surly mastiff, whose watchful eye had been first to observe me, and whose warning *bark* had, to my relief (for I always had entertained an earnest disapprobation to canine authority), brought the indwellers to the door. Accepting the invitation proffered, I was soon ushered into the family sitting-room, a spacious apartment neatly furnished and tastefully arranged, where I found the proprietor, an old gentleman with silvery locks, and from appearance one that might be classed with those of horticultural proclivities, which circumstance might account for the neatness of things in the vicinity. With his eyes raised from the news columns which he had been perusing, he commenced scanning my person as if about to ask my name, when, anticipating his intention, I imparted the necessary information without further delay. "My name is Cruff; I hope my presence here so abruptly will not be considered an intrusion, as I merely called to inquire my whereabouts. I have been taking the air this beautiful morning, and becoming absorbed in contemplation on the way, and not being acquainted with the country, I have no knowledge of the distance I have traveled." The old gentleman, motioning me to a chair, and placing his spectacles more firmly on the bridge of his nose, informed me, after assuring me that my presence was no intrusion, that I was ten miles from the place of starting.

Trying to avoid the embarrassment of further introduction, I began to talk of the general topics of the day, in which the old gentleman freely participated, and we were soon on very intimate terms, myself feeling as much at home as if one of the family. Just as I had arisen to take my leave of the old gentleman a young lady entered the room to announce dinner. She was one of that class of women who, from their superior intellect and accomplished manners, are invariably pronounced beautiful; one whose self-dependence was constituted equal to the various emergencies of life, and, like Joan of Arc, would not hesitate to enact wonders if occasion should be presented. Beside her intellectual attainments, she possessed other claims to beauty. She was a brunette in complexion, with great, dark eyes, whose liquid softness seemed to express the very purity of the soul within. Her face was oval in form, with delicately regulated features, a small, aquiline nose, and a mouth of rare sweetness, on which a perpetual smile seemed to linger. Massive jetty curls flowed in abundance over the neatly-molded shoulders, that cast beautiful flitting shadows on the rose-tint softness of her cheeks.

Calling her to his side, the old gentleman proceeded with—"Mr. Cruff, permit me to make you acquainted with my daughter, Emma Grant." I did my best in the way of manufacturing an elaborate bow, while I offered my compliments in the most becoming manner I could command; expressing a desire that our acquaintance might be happily increased in the future. The graceful-flowing courtesy with which she replied was seasoned with a spice of the *hauteur*, which tended to add materially to her polished beauty, and to exactly correspond with her apparent self-reliance in every action she performed or every sentence she uttered. Through the urgent request of the old gentleman and his beautiful daughter I accompanied them to dinner, and a pleasant and sumptuous meal it was.

When dinner was over, the accomplished Emma busied herself in relating the history of each one of a large and beautiful collection of natural curiosities which she had in a nice state of preservation, within an ornamental box upon the center-table. There were birds from almost every country and from the Isles of the Ocean, and one especially which she related as having been shot on the tomb of Napoleon, at St. Helena. I well remember it,—a small, mole-colored bird, with large, black eyes. I was literally spell-bound under some peculiar influence while looking at it, not from the sight of the bird so much as from the important scenes and associations connected therewith. Her uncle while traveling had taken that bird, and many others of varied kind and plumage; and many shells of the ocean were also in the collection; of each one she gave me some incident of interest. Afterwards we promenaded about the lawn, I admiring, while she gave a description of each tree and plant, as we passed them, with as much precision as the most experienced horticulturist could have done.

Joining the old gentleman in the parlor, Emma was called on to sing and play, which she did in a very satisfactory manner, with ease to herself and pleasure to others.

When the beautiful words—

> "The flowers I saw in the wild wood
> Have since dropped their beautiful leaves,
> And the many dear friends of my childhood
> Have slumbered for years in their graves"—

died away with the soft, sweet tones of the piano, my mind wandered back into the past, and I longed to see my old home. How slight a word may sometimes unfold volumes of important thought before our mental vision, and how slight an incident thrown in our way may

change the entire current of our lives into a different channel, and may either make our existence replete with success or fraught with the dark realities of misfortune! We may sometimes view by retrospect from our present stand-point an incident of minor significance that will change the entire current of our future lives. But who may judge of these things? We are only mortal, and not capable of discerning the future or the things thereof. Though we may know the present and regret the past, we may not guard against the destiny of the future!

Clouds now began to pile up in the western horizon, and everything began to indicate the immediate approach of a violent storm. I was ready to depart, but it was deemed proper by my host and his family that I remain during the night, as it would prove dangerous to venture out until the storm should have passed.

Night had set in, and the darkness that prevailed was almost oppressive in its density. The eye could distinguish nothing, save at intervals when the electric flame would flash in lurid shafts from the dark, ominous sides of the mountain clouds, and light up the surrounding expanse with a glare painful to behold. Succeeding each flash the low, murmuring thunder, would roll along the dismal horizon, sounding the fearful approach of the scathing tornado.

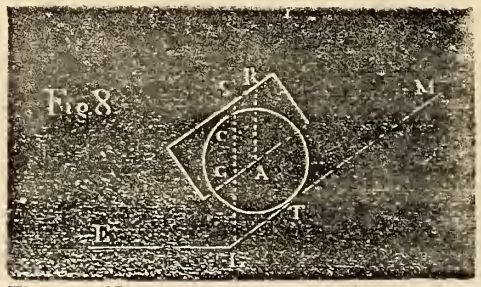
(*To be continued.*)

A BRIEF TREATISE ON THE MECHANICS OF WHEEL-CARRIAGES.

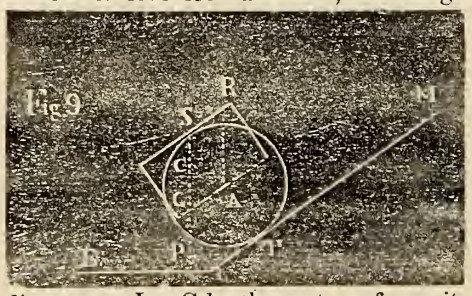
(*Continued from page 79.*)

If, now, any body be supported by a transverse line passing not through the center of gravity itself, but either above or below it, the body can only be kept in equipoise while that line remains directly above or below the point; for, if the body is moved forward, as in two-wheeled carriages, moving down hill a greater part of the weight will be thrown forward over the line of suspension than what remains behind it; and, consequently, this superfluous part must be borne by the animal which draws it. In ascending any height, just the reverse takes place; for thus a portion of the weight is thrown backwards, and will tend to lift up the animal altogether. The consequence of this is, not only that the creature must proceed with great pain, but that the friction on the nave and axle will be augmented by laying upon them a part of the animal's weight also. If the body be suspended above the center of gravity, the effect, though the same in the main, will be reversed in the ascent and descent of a hill, as long as the body is firmly attached to the shafts; but should the whole weight be suspended under the axle, independent of the shafts altogether, then it will always, whether ascending, descending, or moving horizontally, have the same effect as if hung directly by it.

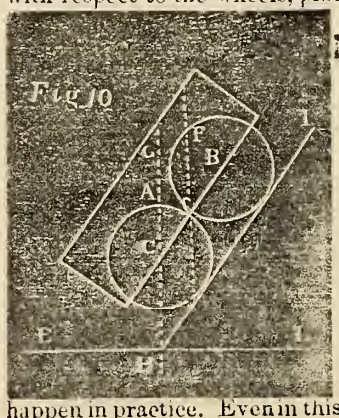
Our author next proceeds to treat of a generally received opinion, that the disadvantages attending carriages suspended either above or below the center of gravity are augmented by the height of the wheels. The reason given for this opinion is, that the hinder part of the load, in ascending a hill, being thrown back, will overhang that part of a large wheel which touches the plane much more than when a smaller wheel is used. Mr. Anstice, however, observes, that all the disadvantage, in either case, is expressed



by the weight which from its action upon the axle tends to lift the animal, which must always be the same whether the wheels are high or low. Thus, in Fig. 8, let a carriage be represented with two wheels of four feet diameter, ascending a plane of 35° elevation from the level E. L. Let Fig. 9 represent a carriage exactly in the same circumstances with the former, only that the wheels are six feet in diameter. Let C be the center of gravity, and S P the line of gravity parallel to the central line A R, the line of support or suspension; in each of these the body is thrown so far back by its position that the space G S and A R is taken from before the line of gravity and added to the part behind it. Hence a certain part of the animal's weight must be exerted upon the shafts, in order to balance that of the carriage, which is thus thrown back, and which, as is evident from the figures, must be the same in both carriages, though the wheels of the one so much exceed those of the other in size, and the point T, where the wheel touches the plane, is much farther from the line of suspension in the large wheel than in the small one.

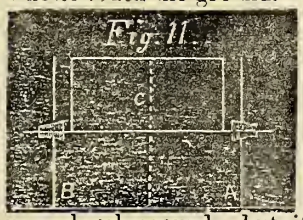


To remedy the inconvenience which must arise from placing the center of gravity in the carriage low enough with respect to the wheels, placing them in such a manner that the line of gravity may always fall between the wheels, in whatever situation the carriage may probably be placed. Thus, if the body A, Fig. 10, be placed on four wheels, the axles of which are at B and C, it will be entirely supported between them, though more by C than B, even though the carriage should be ascending a hill as steep as H I, viz., 50 degrees, which cannot ever happen in practice. Even in this case, the animal would have no occasion to make exertions for preserving the balance of the carriage, though, had it been supported only by the axles of two wheels, as S, far the greater part of the weight of the carriage would have been thrown behind, and the equilibrium could not have been preserved without the greatest difficulty. Hence it is plain, that the greater the distance betwixt the axles of three or four wheels applied to a carriage, the less liable will it be to have the line of gravity thrown out of its proper direc-

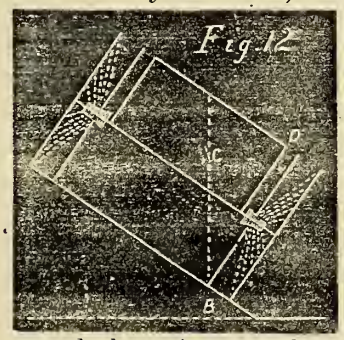


tion; but as this distance greatly augments the difficulty in turning a carriage, some medium is to be observed in this as well as in other things.

What has been just now observed with regard to the preserving the balance of a carriage longitudinally, applies equally to the preventing it from being overturned laterally upon uneven roads, or such as have one side much higher than the other. In order to do this, we must take care to keep the line of gravity so far within the body of the carriage that it cannot be thrown out of it by any ordinary declivity of the road upon one side more than another. In the present case, however, as the wheels are not movable on an axle in a lateral direction, we must consider the points of suspension to be those where the wheels touch the ground. Thus, let Fig. 11 represent the



cross section of a carriage moving upon two wheels; let C be its center of gravity; it is plain that in the position there represented each of the points, A and B, sustains an equal share of the weight, and must do so as the carriage moves upon level ground; but if it be drawn along a road, one side of which is higher than the other, such as represented in Fig. 8, then the center of gravity, and, consequently, the whole weight of the carriage, will bear upon the point of the wheel B, with this additional inconvenience, that the pressure does not lie perpendicularly, but somewhat obliquely, by which the wheel is in great danger of being broken. To avoid inconveniences of this kind the points of bearing upon the wheels are removed to a greater distance than the exact perpendicular, and this is called *dishing* the wheels, the good effects of which are



evident from Fig. 12. The wheels are dished by inserting the spokes into the naves in such a manner that they may decline every way from the carriage. Some disadvantage, however, attends this contrivance, for the carriage thus takes up more room upon the road, which makes it more unmanageable; and when it moves upon plain ground, the spokes not only do not bear perpendicularly, by which means their strength is lessened, but the friction upon the nave and axle is made unequal, and the more so, the more that the wheels are dished. To obviate these inconveniences, some have bent downwards the end of the axles; but thus the good effects of the dish is entirely lost, for the wheels are thereby thrown erect, and the breadth of the dish doubly increased on the upper part of the carriage.

The practice of bending forwards the ends of the axle is still worse; for thus the wheels are thrown out of that parallel direction which they should always preserve on the ground, and likewise increases the friction both on the shoulders of the axles and likewise on the ground; for the wheels, by rolling in this position, would soon come together, if not prevented by the shoulders of the axles; whence in every revolution they must rub with considerable force upon the ground.

Pen Illustrations of the Drafts.

VICTORIA PHAETON.

Illustrated on Plate XXI.

This beautiful design we copy from the *Mercure Universel*, the English prototype being much improved in passing through the hands of the Frenchman. The wings, an unfashionable appendage in America, may be dispensed with, and a step similar to that on the coach, on Plate I, supplied. The entire design is suggestive for study, which we hope our readers will improve and send to this office for the Magazine.

CUT-UNDER BUGGY.

Illustrated on Plate XXII.

The beautiful design we give on this plate is from our worthy friend, Mr. J. R. Bartlett, of Haverhill, Mass., who will please accept our thanks for this and previous favors. According to the prevalent mode, the seat is formed with round corners and paneled. The hind-quarters of the body are also paneled. It requires good stock, with a skillful artisan, to make a creditable job; but when properly finished this style of buggy will furnish a beautiful vehicle, well adapted to the wants of city physicians, who are now calling for a lighter and a more facile-turning description of carriage than they have hitherto used.

SHAMROCK PHAETON.

Illustrated on plate XXIII.

Within the past few years an increasing demand for sporting carriages has been made in this country. To promote the interests of our subscribers and gratify the tastes of the public, it affords us much satisfaction to present them with the engraving we give after an English design, kindly sent to us for this purpose, by our friends and correspondents, Messrs. Atkinson & Philipson, of Newcastle-on-Tyne, Eng. This example is hung upon what in England are called extra high wheels. The hind-quarters are supplied with blinds. The stanhope seat (too high for American taste, but comfortable) could be modified and made lower, making this a valuable acquisition to our already large stock of designs. Our transatlantic friends usually trim these phaetons with valencia cushions and falls, and paint them richly.

Our Designs.—The drawings with our two latest numbers have been chiefly foreign, but in our next we intend they shall be entirely American, and more adapted to the wants of the American coach-maker. To accomplish our object, we hope those who have written us on the subject will immediately send on such designs as they may have for us.

Sparks from the Anbil.

HOMOGENEOUS STEEL FOR AXLES AND TIRES.

Our readers will bear us out in the truthfulness of the assertion, that we are not accustomed to recommend a thing until we are fully persuaded that it is worthy of notice. Such we believe the homogeneous steel sold by Mr. Littlejohn, of 24 Cliff street, N. Y., to be, and in answer to the correspondents who have written us on the subject we would say, that in our judgment it is the best and the only article yet manufactured fitting for light axles and tires, such as are used in our lightest carriages. It is of the nature of iron for welding, and of steel in practical use—an axle of $\frac{3}{4}$ inches in a buggy having been tested with 500 pounds pressure without springing it. Although the first cost of a tire per pound is a little more than the best iron, still the weight required for a set of tires is so much lessened by its tough and stiff nature that the expense is actually but a trifle more than when iron is used, and the satisfaction afforded the customer incalculable.

Mr. Wm. H. Saunders, the celebrated axle-manufacturer, who is conceded to be a practical mechanic, says (after testing homogeneous steel in different ways) that it is as stiff as any cast steel he ever used, and beyond comparison more tough than cast, shear, German, or spring steel; and that it welds with perfect ease, at a low temperature, to itself, other steels, and all varieties of iron, and even malleable cast iron. He further states that he has "bent it cold in $\frac{5}{16}$ round rods, $\frac{1}{8} \times \frac{7}{8}$ flat bars, and $\frac{3}{4} \times \frac{7}{8}$-inch square bars, without showing the least fracture, and the square bars, lying on sharp edges, bent under repeated blows of a sledge to an angle of at least forty-five degrees before fracture—a flexure which no cast steel I have ever used approaches."

Tires of this steel are said to have run double the time of iron ones without setting, and the homogeneous steel for tires and axles is universally recommended by the best carriage-manufacturers in America. See the advertisement in our columns.

IMPROVEMENTS IN IRON AND STEEL.

At the annual meeting of the London Institution of Civil Engineers, a general retrospective view was given of the material progress of the world, and the improvements which had been made in the iron manufacture during the last few years, and the changes that were now taking place were referred to; and it was stated that the result had been that, whereas the annual "make" of a blast furnace, in the year 1750, was only about 300 tons, now it ranged from 5,000 to 10,000 tons per annum; and, in a few cases, amounting even to 15,000 tons per annum. In reference to wrought iron, it was said that the plan of reversing the rolls had been considerably extended, and occasionally a second pair of rolls was placed close to the first, running continually in the opposite direction, so that the iron could be rolled either in coming forward or in going back. Plates $1\frac{1}{4}$ in. thick, by 3 feet wide, and 20 feet long, and plates $4\frac{1}{2}$ in. thick, by 3 feet wide, and 15 feet long, had been rolled, as well as bars up to 72 feet long. Most of the improvements in the manufacture of steel had been introduced within the last half century. Cast steel bells, weighing 53 cwt. each, had been made in this country, and castings of steel weighing 100 cwt. in Austria. Large plates and very heavy bars had also been made of puddled steel, produced direct from cast iron; and lastly, steel wire, when hardened to about a deep blue temper, was found capable of carrying 130 tons per square inch. More than one process had been used in the production of cheap steel, which had been found by recent experiments to possess nearly double the strength of ordinary iron, accompanied by other valuable properties. With regard to the application of iron, a new era commenced with the construction of the Conway and Britannia Bridges; as the elaborate experiments made prior to their construction tended to prove that previously received theories were in some respects erroneous. Again, the building erected for the Great Exhibition, in 1851, from its lightness and security, called attention to the hitherto undeveloped capabilities of the combined use of cast and wrought iron for such purposes. —*Amer. Railway Review.*

Paint Room.

For the New York Coach-maker's Magazine.

LESSONS IN PRACTICAL COACH-PAINTING.

BY F. W. BACON.

(*Continued from page* 68.)

LESSON VI.—Gilding, Ornamenting, Etc.

As there is considerable done in the line of gilding and ornamenting, particularly on sleighs and omnibuses, it may not be amiss to offer a few hints in regard to the manner of doing it.

In the first place, it is *indispensably necessary* that the surface to be gilded should be very smooth and clean. And now for the process: Take some fine, dry whiting, done up in a piece of muslin. This is the *pouncer*, as it is called. Pounce the surface to be gilded well with this, and afterwards blow off the superfluous whiting with the breath. *Don't dust it.* The object of this is to prevent the gold from sticking where it is not wanted. Then trace your design with fat oil. (A recipe for the preparation of fat oil is given on the next page.) Allow this to dry until it becomes tacky, then apply the gold-leaf in the usual manner. Take a short camel-hair brush and press the gold down over the entire surface. Let it dry three or four hours longer, and burnish it with a cotton ball or pouncer. If you wish to shade your ornament, take some asphaltum, and add to it a little raw sienna mixed quite thin with raw oil; this prevents it from "*setting*" too quick, and gives it a rich golden shade. The shading may afterwards be glazed with Indian yellow or yellow lake.

Instead of fat oil for size, some use varnish; but you cannot do as good work with varnish, and, besides, it is

apt to crack. Fat-oil size does equally well for gold, silver, or bronze. Flowers, birds, etc., are very nice if painted in transparent colors over gold or silver.

TO MAKE TRANSFERRING PAPER.

GRIND any color you wish in sweet oil, and apply a coat of this to thin, unsized paper (printing-paper answers well). Let it remain about twelve hours, and then apply another coat. Let this also dry over night, and then rub off all that will come off.

Directions for Use.—Lay the colored paper over a piece of white paper; next, lay a thin piece of paper over this, and the engraving over the whole; take a pointed instrument (a sharpened stick) and trace the engraving, taking care not to move the paper. This copying paper is equal to any sold at the shops.

TO TRANSFER ENGRAVINGS TO WOOD.

VARNISH the wood and allow it to become thoroughly dry; then give it another coat and allow it to merely set; wet the engraving, but do not allow any drops to stand on it, for if you do it will make blisters in the picture; next, apply it to the varnish *face inwards*, and then press it firmly to the wood in every part and let it dry. When dry, wet the paper again, and with the ends of the fingers rub carefully all the paper from the varnish. When it is again dry rub on a little raw oil with a rag. You can now color your picture according to your taste, and finish in the usual manner.

An easy way to get an ornament is to prick the outlines of your design and then lay it on the surface to be ornamented and pounce it through with the pouncer before described.

TO MAKE FAT-OIL SIZE.

PUT some good raw oil in a bottle and leave it uncorked in the sun for six or eight weeks,—the longer the better. Next, strain it into a clean bottle, and keep it corked for use; grind some gold color into it and add a little Japan. If too thick, put in a little turpentine.

From the Carriage Builder's Art Journal.

COLOR: ITS APPLICATION, ETC.

CHAPTER II.

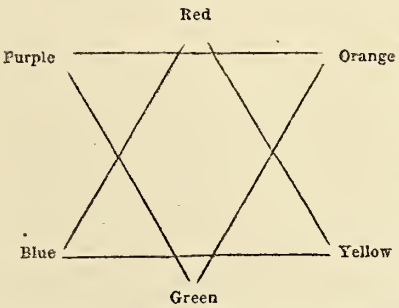
IN the consideration of color, as applied to all art purposes, the most simple and at the same time the most perfect division is into three, a number at once complete, beautiful, mysteriously and wonderfully so.

In the separation of colors by the prismatic spectrum, Sir Isaac Newton gives us seven, which, because they admit of no further separation, he has called primary colors. When we say that they cannot be further separated, we mean that no intervening different color occurs, as produced by refraction. The moment one color loses its hue, it partakes of the quality of the next in position, of these seven, however gradual or inharmonic the change may be. These seven colors are thus systematically set down; *first*, red; *second*, orange; *third*, yellow; *fourth*, green; *fifth*, blue; *sixth*, indigo; *seventh*, violet.

The rainbow best shows us the arrangement, quantities, and relationship of these seven hues, and it will be clearly seen how beautifully each one of these amalgamates and connects itself with its neighbors on either hand; thus, for instance, so soon as the red loses its intensity of redness on the one hand, it partakes of the orange hue, while, on the other hand, it merges into the purple; in the one case being orange red, then red orange; on the other side, purple red, and then red purple, each being gradually lost in each.

Of the separation of these, we shall take occasion to speak by-and-by. For the present, however, we take the simpler division into three, viz., red, yellow, and blue, and these we shall strictly consider as primaries: primitive in the stricter sense of the word, because they cannot be produced by combination; elements, in fact, of their kind, which we can trace to no higher a source, unless we take such source to be what their fusion would produce, namely, white or *light*, the absence of all appreciable color.

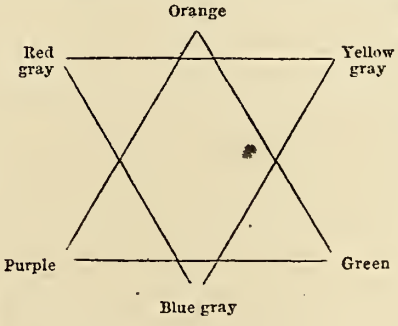
Their triune character will be best expressed in a figure conformable to their nature—the triangle—which we make use of in the annexed diagram, and which we have doubled to introduce the secondary colors. These secondary colors, as will be manifest, are produced by the union of *two* of the primaries; thus red and yellow form orange color, yellow and blue give the intermediate green, as in like manner, blue and the first color, red, when combined produce purple.



We shall be told that the seven colors of the rainbow, or the prism, are not made out. True; but it must be observed that indigo, one of the seven, is to be taken as part of the primary blue, of which it is but the focus or depth.

We have thus the primaries and their *produced* secondaries, given, for the sake of simplicity, in a generalized form, in which the complexities of more minute division are for the present dispensed with. *Black* and *white* are both to be taken as the absence of *color*, the circumstances of which will be explained by-and-by; so that we may be allowed to put forward, as a fact already granted, that gray, the union of black and white and the representative of both, under modified conditions, is produced by the combination, in their *proper quantities*, of the three primary colors, red, yellow, and blue, or the three secondary colors, orange, green, and purple.

We now present another diagram of the same form as the first, and in this are set down the *secondary* colors as occupying the principal places. From them we have the tertiary colors, precisely in the same way as from the primaries the secondaries were derived.



Science of all kinds will have its technical terms, and, no doubt, necessarily in most cases. In conformity with such rule, we have the three colors of the third grade, namely, the tertiaries, under the names of citrine, olive, and russet. Now, these colors as so desig-

nated would hardly be recognized in these times by others than artists and the scientific, who treat of light and color; we shall presume, therefore, to make use of a simpler nomenclature. Were we addressing ourselves particularly to the fairer portion of mankind, we should consider ourselves bound to adopt *their* peculiar technicalities, and instead of citrine, olive, and russet, we would write "*feuille morte*," *couleur* "*d'arachne*, and *mauve*." Instead of any of these, therefore, we shall content ourselves with yellow-gray, blue-gray, and red-gray, and call them such.

The tertiaries are thus derived: the secondary color, orange, being formed of red and yellow, and the green, of blue and yellow, it follows that when green and orange are mixed together we have a tint combining all the three primaries, but, with the yellow in excess, and thus we have what is called yellow-gray (citrine). So, with the green and purple mixed, the green being composed of yellow and blue, and the purple of red and blue, we have, therefore, a redundance of blue, and blue-gray (*olive*) is the result.

Next, we have to combine purple and orange, in each of which red occurs, so that to once of each of the other colors we have twice of red and red-gray (*russet*) results.

Now, in the forms of the diagrams we have given, it will be found that, placed as they are, their opposites in position will at once show their relationship, or complementary tones. Thus, for instance, if we wish to find a color that shall be truest in harmony with any other we may propose, we have but to seek it in its opposite place, in one or other of the diagrams. If we seek it in the diagram of primaries, we shall find that, opposite to red, green occurs. If we look for orange and would learn its complementary, we find it in blue, placed opposite.

And so, in the diagrams of secondaries and tertiaries, if we seek for the complementary or harmonizing color to any one of the three, we shall find it in position opposite; thus, to orange, we shall have the blue-gray; to red-gray, we shall have green, and so on; such selection or arrangement always securing a just balance. It must be mentioned, however, that, although this may be true as a general rule, that there are numerical considerations which are yet to be taken into account as regards the value of particular colors, or mixture of colors, and that accordingly as they may be true in their proportions of power—numerically considered—so will they be more effective. To this calculation we shall now address ourselves.

(*To be continued.*)

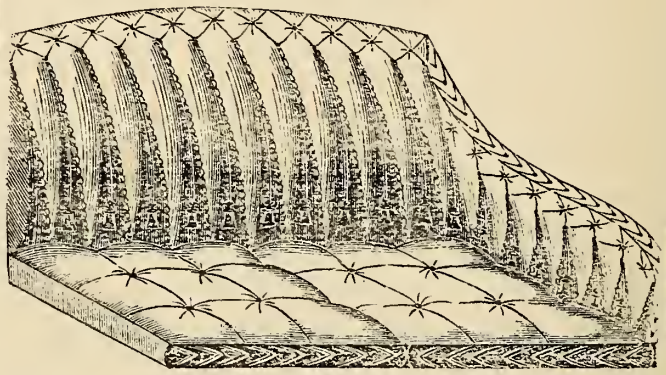
Trimming Room.

HARNESS BLACKING.

Take isinglass, ¼ oz.; indigo, in fine powder, ¼ oz.; soft soap, 4 ozs.; glue, 5 ozs.; logwood, 4 ozs.; vinegar, 2 pints; ground black, ½ oz.; and beeswax, 1 oz. The logwood should be infused in vinegar, subjected to a gentle heat, for some time, before mixing with the other ingredients, until the color is well extracted. When all the different articles are mixed, boil the whole until the glue is dissolved, and, when cool, put the mixture into a stone or glass jar, corked. We have before, in this work, published several recipes for harness-blacking, but this differs from them all.

LINING FOR A PHAETON.

We are indebted to our Dayton, O., friends, Messrs. J. M. Watters & Bro., for this very original style of trimming. It was designed for a phaeton they exhibited at the late Ohio State Fair, where it received the second premium,—said firm (as they did last year) having been awarded the first premium on buggies.



In making up this lining, first, make the fullness or swell on three or four thicknesses of buckram, drawing the leather or cloth (as the case may be) smooth; next, cut out the points of the diamonds from the same thickness of buckram, making these points just long enough to extend over the swell, and fasten at the top and bottom with buttons or tufts. Previous to doing this, however, we must suppose that the lining, as shown in the engraving, has already been stuffed in the diamond form, at the top (or the trimmer might vary the design, in this respect, to suit his own taste), and the edges of the stuffed points below, after being secured to their places, are finished with gimp edging or some other tasteful binding.

The refuse left after cutting out the back-lining might be used in making the same finish to the fall, by stitching them in position to a plain piece of patent leather, allowing fullness in them to stuff lightly. The cushion-facings can be finished to match the same design by pasting two pieces together, and, after stitching, cutting out every other point, and afterwards raising them slightly by stuffing. The tassels used in this example are formed of blue and white silk, intermixed, which looks showy, but could be omitted by those whose tastes run in a plainer channel. The material for the ground-work of the Messrs. Watters' phaeton was black patent-leather, and the outside surface (diamonds, etc.) silver bronzed. A job finished in this manner looks neat and well, and this was generally admired by the visitors to the exhibition.

To Correspondents.—Several trimmers have promised to send us something for our columns;—shall we hear from them soon?

EXPLANATION OF STITCHING-PLATE M.

ALL the figures on this plate, except Nos. 1 and 4, were furnished us by Mr. Clarke, of Pen Yan, N. Y.

No. 1 is a beautiful design for the corners of dashes.

No. 2, in half figure, is for the center-piece to buggy-boots.

No. 3 makes a handsome ornament to the border corners of a seat-boot.

No. 4 is a figure for a bow-cap, where the side-curtains roll up.

Nos. 5 and 6 present designs for the fronts of cushions; the first being in half figure, for the front ends of long cushions. With a trifling alteration, Fig. 5 might easily be accommodated to dash or boot corners.

In giving this plate, it may be necessary to remark, by way of apology to our city patrons, that, in our late visit to the country, we found that white stitching was still in general use there, although entirely discarded here. To discontinue these plates now, would tend to curtail the usefulness of our publication among those we are desirous to serve. For this reason, we must occasionally publish them for their benefit, as well as our own interests.

For the New York Coach-maker's Magazine.

PARTING DAY OF SUMMER.

BY LUA DELINN.

THE green is fading from the earth,
The sunshine from the sky,
The flowers,—how joyed we at their birth,—
How can we see them die?

The summer scatters all our path
Sad tokens as she parts;
Alas! 'tis not for *these* she hath
A place within our hearts.

Ah! not for tokens thou dost *leave*,
But treasures torn away—
O! summer, 'tis for *these* we grieve,
On this, thy parting day.

Full many a summer yet will greet
The earth with garlands fair,
Whose flowers will pour their perfume sweet
Upon the balmy air.

But when *life's sunshine* has grown dark,
When once *its* blossoms fall,
Nor light will down, nor flowers return,
E'en at the summer's call.

THE RIGHT SPIRIT—HOW MANY WILL RESPOND?—A correspondent writes us, in reference to our determination to continue this work monthly during the war: "I rejoice with great joy to learn positively that the Magazine is to be a permanent institution, in adversity as well as prosperity. The position you take at this time shows that 'you are the right man in the right place' for the interests of the craft; and if we allow you to make any pecuniary sacrifice, it will be a burning shame to us. We can prevent it, if we all make an effort in the right way, without any pecuniary loss to ourselves. I hope I shall be able to give a good account of myself in a few days in that line." A little *voluntary* effort from our country friends in adding to our subscription list would receive our best thanks, just now, and benefit themselves.

The New York Coach-Maker's Magazine.

NOVEMBER 1, 1861.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

BOUND VOLUMES *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

COVERS, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

POSTAGE.—*The postage on this work is* 3 *cents per quarter, paid in advance. Our friends will report to us all Postmasters charging more, and we will have the matter set right.*

STAMPS.—*The old issue of stamps are worthless. The new* ONLY *will be received in pay for the Magazine, hereafter.*

☞ *All letters directed to this office on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*

IMPORTANCE OF MECHANICAL ART.

IN a recent article we endeavored to show that mechanical labor *was* both respectable and also successful as a life occupation. We will now endeavor to show its importance, and that in some countries it was once enjoined that all classes should be taught some mechanical art. Without mentioning all, we may state that among the ancient Germans every parent was obliged to give his children a trade, and from this injunction neither wealth nor rank excused him. The ancient Jews are said to have had the same custom. The Koran enjoins upon all good Mussulmen that they teach their children some handicraft, and the reason assigned is that they be able, *under adverse circumstances*, to earn an honest living. These measures were founded in wisdom, and, were they carried out more generally among us, would "hide" much of the unhappiness and suffering now endured.

The importance and value of mechanical knowledge with the masses is not well considered; its attainment is too much neglected under the poisonous influences of prejudice, as hinted at in our recent article under the head of "Mechanical Labor Honorable." While we pity such persons, we cannot but think that they have never seriously reflected upon the absolute want of all comfort which would fill the world if mechanical industry and ingenuity had been entirely neglected among men. Where would the so-called aristocracy itself find the wherewith *to shine?* Truly, pride has so completely blinded the eyes of some that they have entirely overlooked the usefulness of that larger class of their fellow-beings who have built up that state of society in which

they glory. They have been so long accustomed to listening to the disparagement of mechanical employments that the sentiment, "greasy mechanic," has become chronic with them, and a term for designating everything *they* undervalue.

Let us picture to ourselves the period when Adam and Eve, for their disobedience, were sent forth from the garden of Eden—where every necessity was supplied through spontaneous channels—to till the ground, and in the sweat of the face eat their bread in sorrow, and see how dreary and desolate must have been their situation and the situation of their children, also, had not God intuitively implanted in the human mind the germ of mechanical art. The hoe, the spade, the sickle, and the ax, all owe their existence to the mechanic; without these agriculture would be difficult and all business languish. Heathenism, barbarism, and corresponding evils would predominate. We have strong evidence of this in the fact that where the mechanical arts are the most cultivated, there civilization is most apparent. The reason is, that as mechanical ingenuity and industry multiply the comforts of life, and substitute mechanical for manual labor, men have more leisure for study and improvement; thus expanding the mind, refining the manners, and promoting happiness.

We will take another view of this subject, and affirm that to the mechanical arts all mankind are indebted for the facilities of knowledge they enjoy, and the facilities of intercourse with one another, and of commerce between nations. Mechanics discovered the art of printing, the mariner's compass, the steam-engine, the telegraph, etc. How, then, can mechanical art be so ignoble as to stamp those who engage in it as beings inferior to those who, but for these mechanics they seem so heartily to despise, would now be roaming the deserts like savages, clothed in skins, "the earth *their* couch, *their* canopy the sky?" Let not, then, the mechanic look upon his occupation as degrading. Let him not regard himself as belonging to an inferior order of humanity, envying those who roll along in pampered pride in splendid equipages. Aye, in splendid equipages! the production of mechanical coachmakers, of the god-like mind, wasting their precious time without benefiting their race!

We would not by any means detract from the honor due to the agricultural or professional occupations. On the contrary, we accord them all due honors—honor equal to that claimed for the mechanic—all are alike useful, and this invidious claim, that one business is more respectable than another, is mere chimera. The merchant is dependent upon the mechanic, the mechanic upon the agriculturist, and *vice versa*. We would be understood as claiming, for the mechanical pursuits, honors equal to any other occupations, and respectability in his business surpassed by none,—nothing more.

SOMETHING ABOUT ODOMETERS.

The odometer, or way-measurer, is an instrument or machine by which the revolutions made by the wheel of a carriage can be counted, and by which the distance that one has traveled can be ascertained. Vitruvius, a Latin author, in Book X., describes a machine of this kind for a carriage, which, in his opinion, would answer for a ship; and Capitolinus, in the life of the Emperor Pertinax, says that, among the effects of the Emperor Commodus exposed to sale, there were carriages of various kinds, some of which "measured the road and pointed out the hours." This instrument was known as early as the fifteenth century, which is proved from the carving on the ducal palace at Urbine, where there is seen the figure of a ship supplied with one, with the wheels and springs carved in detail, probably intended to show the construction.

Levin Hulsius, in his "Treatise of Mechanical Instruments," published at Frankfort, in 1604, describes an odometer, but without naming the inventor. It appears, however, that it was the production of Paul Pfinzing, born at Nuremburg, in 1554; and who, besides other works, published, in 1598, "Methodus Geometriea; or, a Treatise on Measuring Land, and how to use proper instruments for that purpose, on foot, on horseback, *or in a carriage*." This treatise, which was never sold, but given away by the author, contains a description of the same instrument described by Hulsius, and which, as Nicolai says, is still preserved in the collection of curiosities at Dresden. Augustus, Elector of Hanover, between 1553 and 1586, employed an odometer in measuring his territories, which Beckman supposes was the invention of Martin Feyel, who was born at Naumburg, and resided at Augsburg; as Von Stetten relates, in his "History of the Arts at Augsburg," that Feyel made a way-measurer for the Elector of Saxony.

The Emperor Rudolphus II., who reigned from 1576 to 1612, and who was very fond of the mechanical arts, owned two very curious odometers, which not only pointed out distances, but also marked them down on paper by the way. The description and use of one of these is given by De Bool (*Gemmarum et Lapidum Historia*, Lugd. Bat. 1647, 8vo., p. 468), who was that Prince's librarian; and what he says has been copied by Kircher and illustrated by a coarse figure.

At the end of the 17th century, an artist in England, named Butterfield, invented an odometer which met with great approbation. In the first volume of the "Philosophical Transactions," there are two papers written by this ingenious man; but of his odometer no description has yet been found.

At the commencement of the last century, Adam Frederick Zurner invented an odometer, or geometrical carriage, a description and figure of which, taken from

Schramm's "*Saxonia Monumentis Viarum Illustrata*," is given by Nicolai.

In 1724, Meynier laid before the Royal Academy of Sciences, at Paris, an odometer, which was described in the "History of the Academy" for that year. This machine was afterwards improved by Cuthier, and described in the history above mentioned for 1742; a full description, with an illustration, will be found in a work entitled "Machines and Inventions, *approuvées par l' Academie*," t. VII.

The most perfect odometer was that made by Hohlfeld, a Berlin artist, about 1756, which, "fastened to a carriage, indicated the revolutions made by the wheels." This first one having been accidentally destroyed by fire, he invented a more simple machine, "which was so contrived as to be buckled between the spokes of the wheel." Sulzer used this on one of his tours and found it answered the intended purpose. This genius constructed a carriage so that, when the horses should become frightened and run away, the person in it could, by a single push, loosen the pole and set them at liberty. This invention has found imitators among more modern *geniuses* in America.

Mr. Payne, of Bond Street, London, seems to have superseded all other inventors in England down to about 1840; a cut of his pedometer, which in principle may be applied to odometers, may be seen in the "Penny Encyclopedia," Vol. 17, p. 367.

To mention and describe the inventions in odometers in America, would render this article too long. We will, however, state a few of them. Passing over others of less importance, we come to the odometer of F. S. Colburn, of Mass. This instrument, which cannot be fully described without engravings, was secured to the hub by a clamp slipped over it. On the inside of this odometer a weight was suspended to a stud or small shaft, which was so contrived as to maintain a perpendicular position while the wheels revolved. This odometer operated upon the clock-work prineiple, with a suspended balance, which must be objectionable in an instrument of this kind.

Another instrument has been presented to the public by Mr. Work, of Hartford, Conn., on the prineiple of a watch; but this has been improved upon, and patented July 3, 1860, by Mr. A. T. Howard, of Vermont. This, for neatness, accuracy, and durability, is unequaled by any yet invented. It is very simple, and therefore not so easily thrown out of order as some others. Mr. Howard's invention can be had by ordering from the Ives and Pardee Manufacturing Company, Mount Carmel, Connecticut.

An Irishman, on being charged with stealing a wagon, undertook to prove his honesty by asserting that he had owned it ever since it was a wheelbarrow.

EDITORIAL CHIPS AND SHAVINGS.

WAR-WAGONS CONDEMNED.—More than four hundred of the wagons built for the Government, in Pennsylvania, by private manufactures, have been condemned by the inspectors because they were made of green timber and had shrunk at the joints. As in this case, so in our late war with Mexico, many who thought anything might be palmed off on our Uncle Sam have discovered that "honesty is the best policy."

ROLLING STOCK FOR THE ARMY.—The number of wagons, ambulances, and gun-carriages manufactured in this city and other places, for the army, is immense. Stephenson's car and wagon factory in Twenty-fifth Street has been furnishing wagons by the hundred. Wood, the carriage-dealer in Broadway, has already delivered a great many ambulances, and is at the present time actively engaging his manufactory in Bridgeport, Conn., in furnishing army vehicles to the value of $22,000, under a new contract. Althouse & Co., of Houston Street, corner of Greene, have just completed the manufacture of 100 gun-carriages; and numerous other firms, not known to us, are largely engaged in the same business.

STEAM-WAGON.—Mr. Thomas L. Fortune, of Mt. Pleasant, Kansas, has invented a steam-wagon to be used in hauling freight across the Western plains. The machine has, we learn, been tried in St. Louis, giving perfect satisfaction to the spectators. He claimed that the wagon was propelled up a grade of 600 feet to the mile, at the rate of seven miles an hour, with perfect ease. The inventor states that this machine, got up in good style, cost about $2,500. It will haul ten tons to a load, and make three trips per month, or 360 tons per annum, which, at $160 per ton, amounts to $57,600. A force of six hands will run it day and night. Mr. Fortune estimates this steam-wagon to be equal in transportation service to twenty-five ox-wagons. The loss of cattle and other expenses considered, will more than keep one steam-wagon in wood and water.

PANNIER AMBULANCES.—A French importing house in this city have made a contract with the U. S. Government for supplying what a cotemporary erroneously calls an *ambulance wagon*, but what in reality is only a "pannier ambulance," of American manufacture, after the pattern used by the French army in the Crimean war. These, slung over the back of a mule, carry two wounded soldiers, one on each side. At an experiment, a few days since, it was amusing to see these long-eared animals try to divest themselves of their newly-imposed burthens; but in a short time they "give in" and quietly submitted to their task.

A YANKEE BLACKSMITH AT BULL RUN.—The *Boston Courier* is responsible for what follows:—Among the civilians who witnessed the battle at Bull Run was Mr.

Alexander H. Rice, of Boston. Upon approaching Centreville an accident befel his carriage, and, it being Sunday, he was in doubt as to his ability to get it repaired. He walked down street, and soon discovered a blacksmith and four soldiers shoeing horses. He spoke to one who wore the uniform of warrant-officer, and he asked him if he could mend a wagon. "Where are you from?" bawled out the smith, Yankee fashion. "From Boston," replied Mr. Rice. "I'm from Boston, too," he shouted; "I was born at No. 5 Summer Street." Mr. Rice asked how it came to pass that he was here, shoeing horses. "Well," said he, "I belong to the Michigan regiment, and seeing a good many horses without shoes, and a blacksmith shop without a tenant, I thought I'd make a dollar or two before going into the fight." "How much have you made this morning?" asked Mr. Rice. "We have made seven dollars each," said he; "and, as there is no rent on this shop, it is all net gain." In due time he repaired the Congressman's wagon, for which he received all he asked ($1 50) and his breakfast in addition.

Secession Army-Wagons.—A correspondent writing from Grafton, Va., says that the jail in that place is used for the storage of *secesh* arms and ammunition taken, at the battle of Rich Mountain, from Pegram's army. Among these were thirty-five wagons as antique as possible in appearance, enormous in size, the bodies built in panels, and the ends half as high again as they were at the middle of the sides. These wagons are believed to be the production of some Georgian quartermaster's ingenuity.

A New Lubricator.—A Frenchman has recently patented an article for lubrication, consisting of 252 parts tallow; 333 parts oil; 14 parts soda; 12 parts potash; and 389 parts water. First, the potash and soda are dissolved in water, and the grease and oil afterwards mixed in with them. With 25 parts of black-lead added, it is said to be a good article for greasing the axles of carriages.

Traction Engines.—Recently, Mr. Aveling, of Rochester, drove one of his self-propelling engines through the principal streets of the city and west-end. The engine had a single 10-in. cylinder and 14-in. stroke, and weighed, we should suppose, not far from 9 tons. With from 40 lbs. to 60 lbs. of steam, a speed of from three to five miles an hour was attained, and in the most crowded thoroughfares there were no instances in which horses were frightened. The engine was most obedient to the control of the steersman, and was, we understand, turned completely around in a circle 30 ft. in diameter. The engine has a governor by which its speed in descending inclines is kept within proper limits. The same engine, we are informed, had previously drawn a load of twelve tons up an incline of 1 in 6.—*Engineer.*

"The Saddlers being an ancient, a worthy, and a useful company, they have almost overthrown the whole trade, to the undoing of many honest families. For whereas, within our memories, our nobility and gentry would ride well mounted (and sometimes walk on foot), gallantly attended with three or four score brave fellows in blue coats, which was a glory to our nation, and gave more content to the beholders than forty of your leather tumbrels. Then saddlers were a good trade, and the name of a coach was heathen Greek."—Taylor's *The World Runs on Wheels*, p. 237.

Heat from Different Kinds of Wood.—According to the careful experiments of an eminent French chemist, the relative heating values of equal bulks or cords of several American woods are expressed as follows:—Shell-bark hickory being taken as the highest standard, one hundred; pig-nut hickory, ninety-five; white oak, eighty-four; white ash, seventy-seven; dogwood, seventy-five; scrub oak, seventy-three; white hazel, seventy-two; apple tree, seventy; red oak, sixty-nine; white beech, seventy-five; black walnut, sixty-five; black birch, sixty-two; yellow oak, sixty; hard maple, fifty-nine; white elm, fifty-eight; red cedar, fifty-six; wild cherry, fifty-five; yellow pine, fifty-four; chestnut, fifty-two; yellow poplar, fifty-two; butternut, fifty-one; white birch, forty-eight; white pine, forty-two.

Our Next Plates.—The December number will contain the drafts of a Brett, a Physician's Close Rockaway, and the Troy Buggy;—we think one of the best numbers we have published.

Erratum.—In the article on "The Motive Power of Wheel Carriages," given on page 78, eight lines from the end, instead of *shoulder-point*, read, shoulder and point.

FOREIGN IMPROVEMENTS IN CARRIAGES.

November 30, 1860. Improvements in the construction of Wheels.—G. Parsons. This invention is chiefly for improvements upon a former invention, for which letters patent to Great Britain were granted the present patentee the 3d Sept., 1859, and the invention is carried into effect as follows: *First*, instead of casting a ring on the outer ends of the spokes, the patentee connects the outer ends of the spokes to the felloe by means of shoes made of cast or wrought metal, and formed with a socket at front and at back to fit the inside of the felloe, and with overhanging sides, between which the felloe is placed. The outer ends of the spokes may be threaded, and the inside of the sockets correspondingly threaded, and the parts may be united by screwing. The threaded ends of the spokes may terminate in the shoe, or they may be extended through the shoe and felloe and may be secured to a countersunk nut, or the outer ends of the spokes may be fixed in the sockets of the shoes by welding or otherwise. If found necessary, the shoes may be secured in their positions on the felloes by screws, bolts, or rivets; but he has found that the shrinking of the tire on the wooden felloe in the ordinary manner is sufficient to re-

tain the shoes in their places. He prefers that the nave be of the construction described in the specification of his patent before referred to, and that the spokes, when of wrought metal, be affixed thereto in manner therein set forth; but the nave may be otherwise constructed, and the spokes may be of wood. In such case, the "shoes" hereinbefore mentioned for the reception of the outer ends of the spokes must have the inside of the sockets shaped and formed to correspond to the form of the outer ends of the spokes, so that they may fit into the sockets. *Patent completed.*

DEC. 10, 1860. AN IMPROVED METHOD OF LOCKING OR SKIDDING THE WHEELS OF VEHICLES, FOR THE PURPOSE OF RETARDING THE PROGRESS OF THE SAME.—T. Peake. This invention consists principally in connecting the shoe or skid with a system of rods and levers, extending therefrom to the seat of the driver, or other suitable part of the vehicle, conveniently placed for the driver to operate upon. The patentee connects to the under part, or body of the vehicle, a cross-axle, capable of revolving in bearings; upon one end of the cross-axle he securely fixes a lever, made with two arms, similar to the letter V inverted; the extremities of these arms he connects by bolts and nuts to the side of the shoe or skid. He also forms on the boss of this V-shaped lever a short lever, and connects the same by a rod to another lever, the end of which extends to the driver's seat; the lower end of this lever is connected by a pin to the body of the vehicle, and by pushing this lever from, or pulling it to him, as the case may be, the shoe or skid will thus be brought under the wheel, the chain of the shoe or skid taking the entire strain thereon. *Patent completed.*

DEC. 22, 1860. AN IMPROVED METHOD OF MAKING WHEELS FOR CARTS, WAGONS, AND CARRIAGES, FOR COMMON ROADS AND RAILWAYS.—H. Hughes. This consists (1) in the introduction of wrought or cast-iron tubes, on which is cast an ordinary cast-iron nave; (2) in forming a wheel of bent spokes of wrought iron, by riveting or bolting such spokes to the inside of felloes, or a ring of wood, and then casting on the spokes a cast-iron nave, after which the tire is shrunk on as usual. *Patent abandoned.*

JAN. 21, 1861. IMPROVEMENTS IN VEHICLES KNOWN AS HANSOM CABS.—T. Stewart. This relates (1) to forming the fronts of such vehicles, above the level of the doors, of a semi-circular form, and inclosing the same with sliding and fixed sashes or glasses; (2) to the application of wings to such cabs, to protect persons from the wheels on entering and alighting, and to prevent the dirt being thrown in the forward direction. The doors of these cabs are made to open much in the ordinary way, and in the upper part are formed the grooves for the sliding glasses. The inventor incloses the space above the fixed part of the front at the sides of the doors by fixed curved glasses, a standard being carried from immediately over the hinges to the roof to form the frame; inside of these fixed glasses he forms the construction of the grooves to carry the sliding glasses before mentioned. These sliding glasses he suspends at top from a curved rail running round the front, on which rail the sliding glasses traverse on wheels, or otherwise. *Patent abandoned.*

JAN. 24, 1861. IMPROVEMENTS IN THE TIRES OF WHEELS FOR VEHICLES.—R. Thomas. Here the object is to secure tires on wheels, so that if the tire breaks it will nevertheless remain attached to the felloe of the wheel. The inventor effects his object as follows:—He forms the tire of the wheel with lugs or projections on the edges thereof, at certain distances apart, the lugs on one edge coming opposite to the spaces between the lugs on the other edge; these lugs are intended to embrace the felloe of the wheel, and may be connected thereto by screws passed through the said lugs, or by bolts and nuts; or the screws or bolts may pass through the tire or felloe, or be secured to the tire and wheel in any other way. *Patent abandoned.*

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

August 20. IMPROVEMENT IN SPOKE MACHINES.—Albert R. Davis, of Syracuse, N. Y.: I claim the series of carriages, B, placed in an inclined bed or frame, A, in connection with the vertical and lateral pressure rollers, F Q J, vertical slides, E, weights, G, horizontal bars, H, rods, I, vertical slides, M, weights, N, and rotary cutters, S, arranged for joint operation, as and for the purpose set forth.

I further claim the slides, H′, when arranged and used in connection with the parts above enumerated, as and for the purpose specified.

27. IMPROVED MACHINE FOR ROLLING CARRIAGE-AXLES.—T. H. Miller, of Lancaster, Pa.: I claim the tongs described, provided with the swivel clutches, K K, shoulders, *k k*, space, *l*, and check, *i*, for the purposes of holding, turning, and gaging the iron in the process of rolling without removing it from the tongs, when the same is used in connection with the gage-rod, I, and grooved rollers, C D, of the machine, substantially as specified.

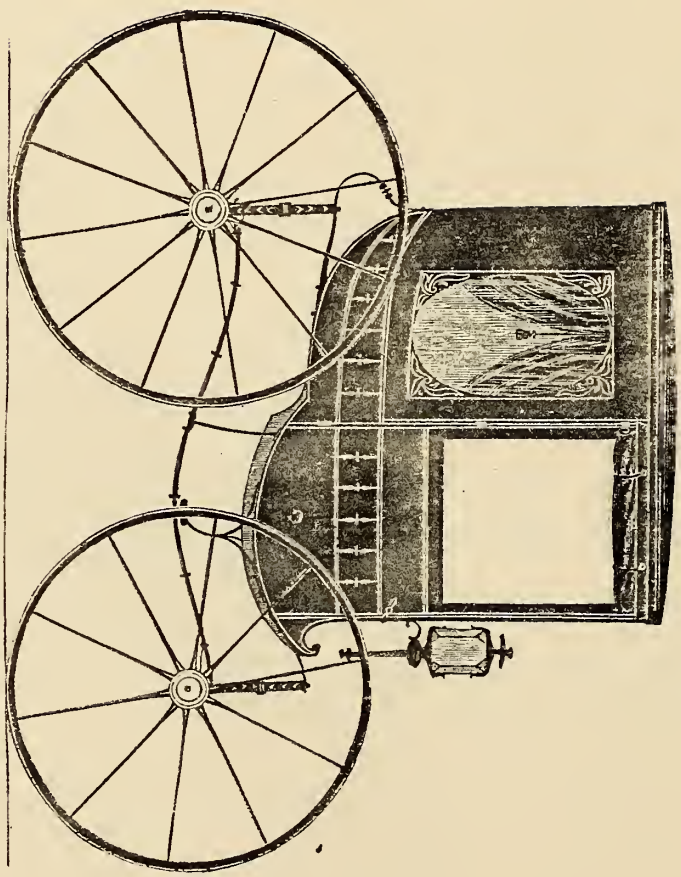
September 3. IMPROVEMENT IN METALLIC SLEDS.—R. J. Mann, of Seneca Falls, N. Y.: I claim a semi-tubular sleigh-runner, constructed substantially as described. I also claim a bed-frame of a sleigh, consisting of a combination of longitudinal and cross-bars of corrugated metal combined together substantially as described. I also claim combining the runners of a sleigh with the bed-frame thereof by semi-tubular braces, constructed and arranged substantially as described. I also claim the combination of semi-tubular sleigh-runners, a corrugated bed-frame, semi-tubular braces, and a bed, the four members of this combination being constructed and combined substantially as described.

17. IMPROVEMENT IN ANTI-FRICTION BOXES FOR CARRIAGE-WHEELS.—J. B. Blanchard, of Sacramento, Cal.: I claim the rollers, B, in the box, A, by means of the cap, C, screwed on the outer end of the box, A, and provided with the ledge or shoulder, *f*, and recess, *g*, in connection with the ledge or shoulder, *b*, at the inner or back end of the box, A, and the annular plates, *d h*, and screw-rods, D, substantially as described.

24. IMPROVEMENT IN THE HOUNDS [FUTCHELS] OF CARRIAGES.—John Maddock, Dubuque, Iowa: I claim the front hound, E, of a wheel vehicle steamed and bent in circular form, and applied to the vehicle substantially as and for the purposes set forth.

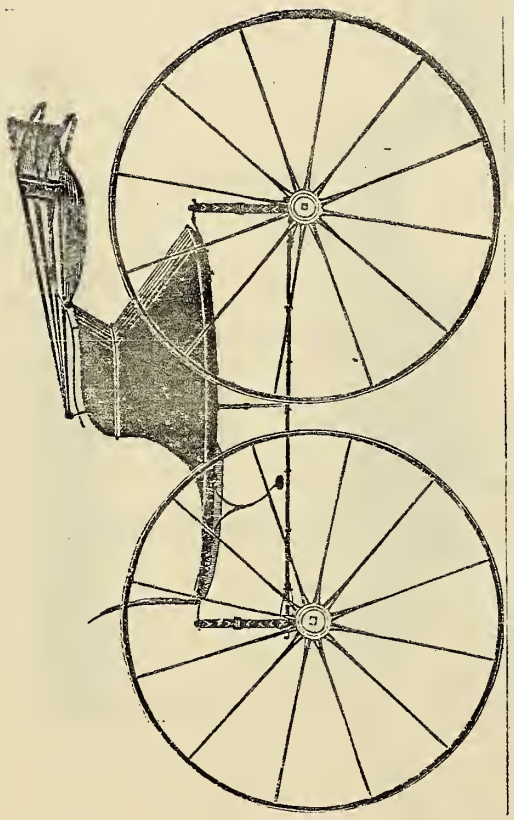
IMPROVEMENT IN REMOVABLE CARRIAGE-FRONTS.—C. F. Albright and L. Burkhard, of Pottsville, Pa.: We claim the hinged or folding movable front for carriages, dispensing with aprons, constructed and operating as set forth, and for the purposes described.

IMPROVEMENT IN PROCESS OF MANUFACTURING WHITE LEAD.—George Cary, of Cleveland, O.: I claim subjecting metallic lead placed in a room or chamber made and kept tight throughout the process, as specified, to the action of aqueous and acetic acid vapors conjointly and continuously with carbonic acid gas, until the process is completed in the manner substantially as and for the purpose set forth.



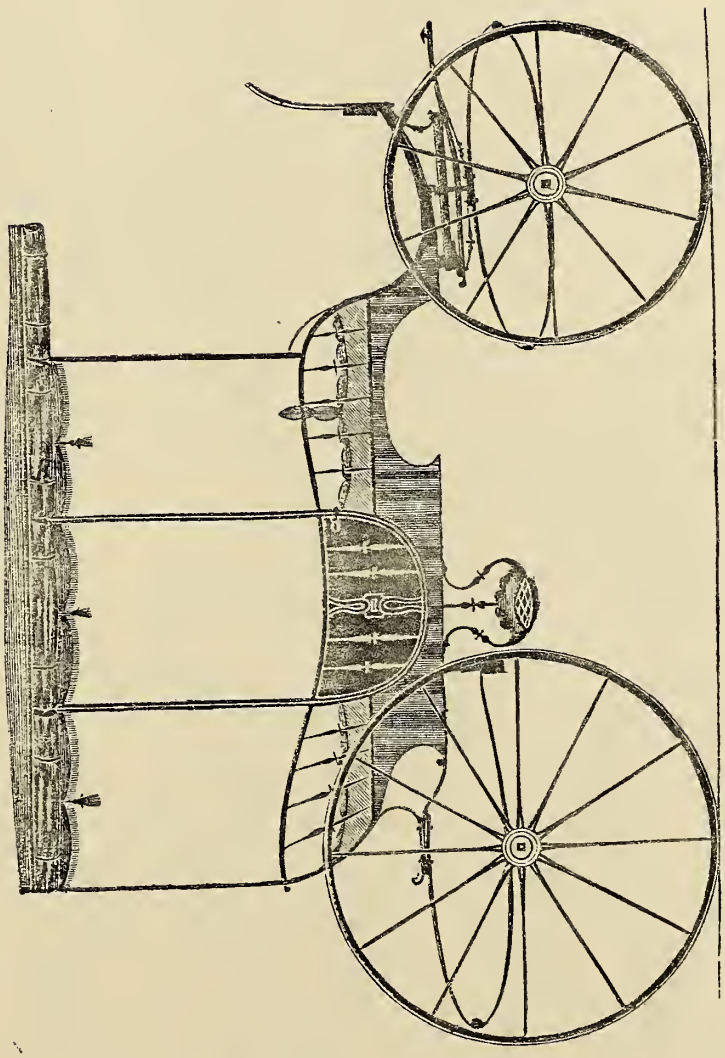
PHYSICIAN'S CLOSE PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 111.



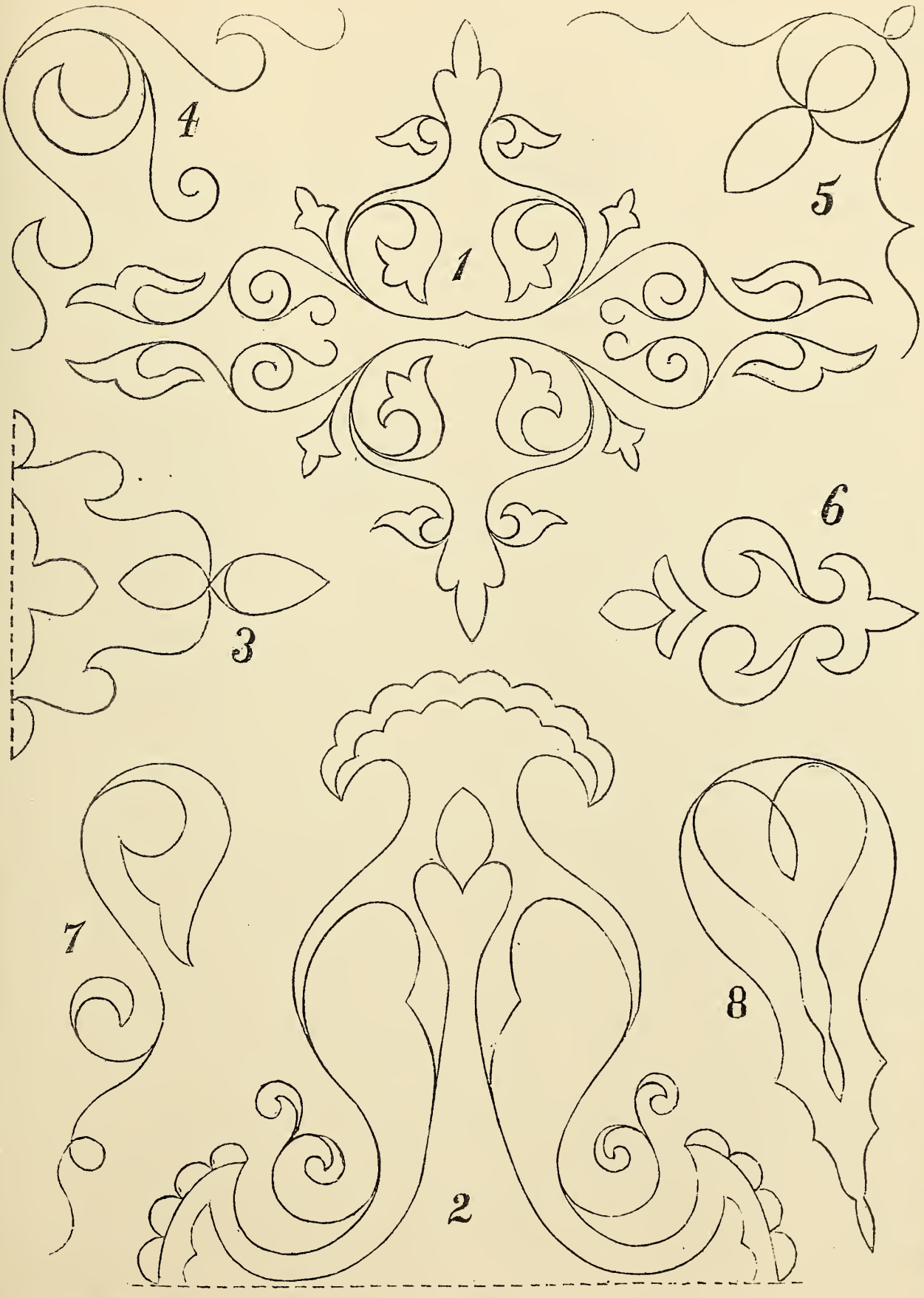
TROY BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 111.



PICNIC ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine—*Explained on page 127.*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THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, JANUARY, 1862. No. 7.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 92.)

Under the idea that such were absolutely required, all carriages were formerly constructed with the wooden-plated or crane-neck perches; if designed for the East or West Indies, almost invariably with the crane-neck; and such are now frequently in demand for the South American market. For an exclusive and fashionable class of customers a *Vis-a-vis*, or Sociable, was built, finished in a superior manner to the generality of carriages, and somewhat lighter in the body than the common coach, at much less expense. These Sociables were originally intended for two passengers, who sat facing each other, hence the name, *Vis-a-vis*—face to face—Sociable, and, being narrow, was proportionably warmer, and the passengers not so easily tossed about.

The Post-chaise was another variation from the coach model, designed for expeditious traveling, the draught of which was not impeded with unnecessary and cumbersome weight, but made light and plain. The absurd custom of the driver, in riding the near horse in traveling, was a long time practiced, although it was evidently the destruction of a great many horses, "for," says a writer of that day, "if a man is a sufficient burden for a horse to travel with, to impose also an equal share of the draught of the carriage, with his yoked companion, must soon fatigue him, and impede the traveling thereby, unless the poor animal is scourged to exertion beyond his natural strength to keep pace with the other horse; any simple contrivance on the carriage, for the driver to sit in, would lessen the fatigue, both to man and horse, and be more likely to promote speed." These Post-chaises, in the absence of facilities for travel enjoyed by us, were found very convenient, and were kept for public hire, as well as for private use, by such as were able to stand the expense. *Posting*, by public conveyance, submitted the traveler to some inconveniences, such as the trouble of changing his luggage to another vehicle at the end of a post; this could only be avoided where an individual was the owner of his own chaise. The expense, whether by public or by private conveyance, was about the same.

The engraving, Fig. 24, represents the Town Chariot of the last century, and at that day was considered a genteel carriage. It was far more convenient than the coach, being lighter and more airy. These Chariots, seventy years ago, cost, complete, about $932. That the reader may have some knowledge of the details, we will reproduce them from Felton's work:—"The *carriage* [running-gear] is a perch of the bent or crooked form, with iron-plated sides; a whole wheel front; an iron coach-box on a square trunk-boot, raised on neat carved blocks; a raised hind end, with neat short blocks; a footman cushion, with plated mouldings to the frames, and carved hind standards; hooped tire wheels, with moulded fellies and common axles and boxes. The *body* with round sides, a sword-case back, contracted door-lights, lined with second cloth, trimmed with a 3½-inch lace, swinging holders, a pair of silk squabs, plate glasses, with laced glass frames, and silk spring curtains; Venetian blinds; sliding-seat boxes; a Wilton carpet; double folding steps. The *plating* with silver, a small 3-8th moulding, or quill-bead in double rows around the side-panels, and in single rows round the front and door-lights; a 4-8th moulding all round the middle and roof, up the corner pillars and sides of the doors, and along the bottom sides; 4 silver scroll ornaments; an octagon, and a pair of sword-case frames; a pair of plated thick joints, with barrel props and caps for them; eight silver crest head-plates, with silver circles; a set of case-plated metal wheel-hoops; a plated pole-hook and cheek brace rings; five Italian full-plated *lamps*. The *hammer-cloth* of livery, trimmed with a 2½-inch, a bottom row of one-inch, and a middle row of four-inch lace, one bottom row of seven-inch orna-

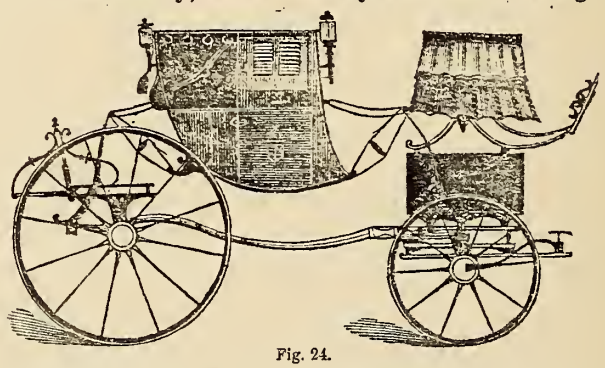


Fig. 24.

mented fringe; four 3½-inch double lace footman-holders; the *painting* picked out two colors; the panels polished; the arms on the doors and crests, on the quarters and stiles; the main and check *braces* with whole buckles; a set of worm springs, with French pole-pieces."

PRICE.	£	s.	d.
First charge for a Town Chariot	93	1	6
EXTRAS.			
A compass perch, iron-plated on the sides	3	16	0
A whole wheel front	2	5	0
A raised fore end, with neat carved blocks	2	10	0
A square trunk-boot for an iron coach-box	6	0	0
An iron coach-box	10	0	0
Raised hind end, on neat carved short blocks	2	5	0
A footman-cushion, plated at the top edge, with carved hind standards	6	18	0
Hooped wheels, with moulded fellies	1	19	0
The body, with round sides	1	0	0
A sword-case back	2	10	0
Contracted door-lights	2	0	0
Swing-holders, and other trimmings, 3½ inches wide	1	18	0
A pair of silk squabs	2	12	6
A set of spring curtains	3	0	0
Ditto, Venetian blinds	2	15	0
Laced glass-frame	1	10	0
Eighty feet of plated 2-8th moulding	5	0	0
Forty feet of " 4-8th "	4	0	0
An octagon, and a pair of sword-case frames	1	1	0
A pair of thick joints, with four barrel props and caps	4	14	0
A set of silver crest head-plates, and silver circles	3	0	0
A pair of ditto, extra	1	0	0
Four cased plated metal wheel-hoops	3	0	0
A plated pole-hook	2	2	0
Six plated check-brace rings	1	4	0
Five Italian round-side lamps, with plated heads and barrels	6	0	0
A hammer-cloth, as described	11	0	0
Four double lace footman-holders	1	16	0
Main check-braces, with whole buckles	0	10	0
Spiral, or worm springs	1	10	0
French pole-pieces	0	6	0
	£192	13	0

The Landaulet and the Demi-landau are, at least, seventy years in use, and, although not as common now, were once very popular. The Post-chaise, another carriage much used by Englishmen in traveling on the continent, would be well represented by removing the front quarter from Fig. 23, and supplying the front body-pillar to it, from Fig. 24 above. The description given of a Sulkey sixty-five years ago sounds ludicrous enough to us, and would well justify the ladies in terming them "*A Selfish*." They are described as light carriages, built exactly in the form of a Post-chaise, Chariot, or Demi-landau, but, like the *Vis-a-vis*, contracted on the seat, so that only one person could sit thereon, and was named "The Sulkey," from the proprietor's desire of riding alone. They were of lighter draught than some other carriages, for traveling, "and the passenger sits more warm, and is less incommoded by the jolting of the carriage." These Sulkies cost less to build than a Chariot, but were valued at the same price to purchasers.

The Phaeton family has been a numerous and diversified one for many years, and "deservedly regarded as the most pleasant sort of carriage in use, as they contribute more than any other to health, amusement, and fashion, with the superior advantage of lightness over every other sort of four-wheeled carriage, and are much safer, and are more easy to ride in, than those of two wheels." Much scope is given, in the construction, to fancy, and perhaps in no other class of carriages has so much taste been displayed. Fig. 25 conveys to the mind a very good idea of this class of vehicles of the time we are now writing.

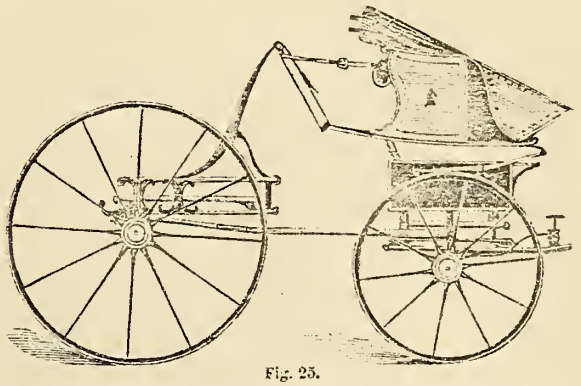


Fig. 25.

They were hung very high, as has before been observed, and were derisively known as "High-flyers." Our example was known as the Perch Phaeton, in contra-distinction to the Crane-neck Phaeton, and, although it did not possess the same facilities for traveling as this last, could be made much more substantial—a matter of no small importance to travelers. The body is, in form, the original of the Gig, and the type has been a long time followed out in England. The most striking peculiarity in this vehicle, to a modern craftsman, is the manner of hanging up the body,—the load resting almost entirely upon the forward wheels. The tendency, evidently, was to make it draw heavier, and, besides, increased the danger of breaking the front axletree. To overcome these disadvantages longer perches were required than ordinary, which gave them a very unartistic show. The cost of a carriage of this description, seventy years ago, got up in good shape, was about £93, or $450. A Crane-neck Phaeton of the middle size has already been referred to in volume three, page 80, and may be taken as a very fair example of that class of vehicles, designed for two horses. Fig. 25 was more generally used with only a single horse.

A fine example of the one-horse, or pony Perch Phaeton, will be seen in Fig. 26. Felton's remarks in regard to Phaetons generally are so sensible and practical that we will transcribe them here: "A pair of ponies from

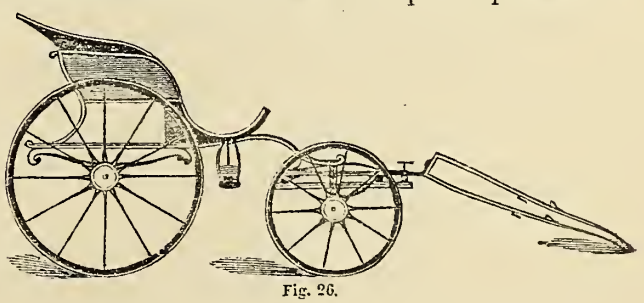


Fig. 26.

twelve to thirteen hands high are about equal, for draught, with a horse of fifteen, and a Phaeton of the same weight is equally adapted for either; excepting only that each should be built of a proportioned height, for the advantage of both horse and driver. A low Phaeton and a high horse are equally as absurd as a high Phaeton and a low horse; yet timid and infirm people prefer low Phaetons—the infirm, because they are easy of access; and the timid, because they are more easy to escape from in time of danger, without considering that the danger often arises

from not having a proper command of the horse when any accident occurs to startle him. Those Phaetons are frequently designed for one horse, or a pair of ponies, and sometimes for one or two horses alternately; a medium should then be observed in the building, that it be neither too high for the ponies nor too heavy for the one horse; a pole and shafts are then necessary, and the pole for the pair, as usual, and the shafts for the single horse; but the single horse should never be used without a breeching. Pony Phaetons are pretty equipages, and are best adapted for parks only; for, being so low, the passengers are much annoyed by the dust if used on the turnpike roads; and one-horse Phaetons, where one horse only is kept, are much preferred to any two-wheeled carriage for safety and ease, but are heavier in draught; to allow for that, it ought to be built as light as possible to be safe with."

Another of the Phaeton class was called a "Pony Berlin Phaeton." The body—a half-paneled Chaise body—was hung at a ridiculous distance from the horse, on what was called a crane-neck, or shafts, and, being shaped from the wood, unbent, were very liable to break. Judging from appearances, they were hard-riding contrivances. Another kind was hung on "grasshopper," or what is now known as the C-spring, with the common perch; and, although it did not answer as well for short turning, was said to be "a safe, light, simple and cheap four-wheeled Phaeton"—four qualities very desirable in vehicles at the present time, but not obtained in the one under examination, judging from a drawing made seventy years ago. They were, however, pronounced "perfectly safe"—a decision we have no disposition to contradict, since they were made without stint of material. The cheapest Phaetons cost £40, and the more costly about £70. In traveling, it was early admitted that small horses in light carriages made a journey more expeditiously than heavy horses in a heavy carriage—a truism no considerate person can dispute.

Another vehicle, just coming into use in 1795, was called the "Shooting Phaeton," designed for the Nimrods of that day. Gigs had previously been used for hunting purposes, but two-wheeled vehicles were deemed more unsteady to shoot from than four-wheeled ones, and were, therefore, getting unpopular. The dogs were carried in a box-like contrivance, denominated *a well*, detached from and hanging under the body over the springs, back and front. An ancient "dog-cart" cost about £66, or $319.

(To be continued.)

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

(Continued from page 78.)

A LEVER has three indispensable points necessary to produce leverage, as represented in Fig. 1. The part from *a* to *b* is the lever, or arm; the point *b* is the fulcrum, or the point which supports both lever and weight; *c* is the weight to be raised. In this fig. the distance from *a* to *b* is twice as much as from the fulcrum *b* to the weight *c*. This determines the relative power between the lever and the weight, which is as one to two; therefore, one hundred pounds on the lever arm will poise two hundred pounds on the weight arm, with the exception of the friction which both weights create at the fulcrum. The lever, the fulcrum, and the weight to be raised, by the ingenuity of mechanism, are changed into almost innumerable positions, yet the great principle of computing the power by the relative distance of the lever-power and the weight to be moved from the fulcrum, is an immutable law of nature, which can in nowise be affected.

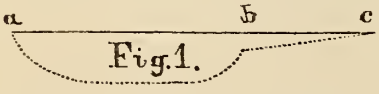


Fig. 1.

The lever has another principle, which is equally unchangeable; that is, in computing the power by the relative distances from the fulcrum, it must be done either by a straight line from the fulcrum, or by lines drawn at a right angle from the fulcrum. The dotted line in Fig. 1 will illustrate the fact. The curve of the arm on the lever makes it proportionably longer than the arm of the weight, yet the length does not add or diminish the power.

Again, in Fig. 2, *a* to *b* represents the arm, *b* the fulcrum, and *c* the weight to be raised. If we change the fulcrum from the right angle to the acute angle, on the dotted line, we do not add or diminish anything to the lever power of *a b c*, which is at right angles, and the right-angle lines would represent the power. The lines *a b c*, in Fig. 1 and Fig. 2, being equal in length, therefore they have equal leverage power.

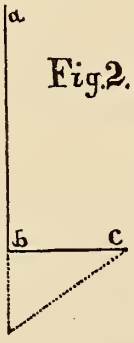


Fig. 2.

This manner of placing the fulcrum is that variation of form which is adapted to wheels; and, in computing the power, we have to resort to imaginary lines, which are represented in Fig. 3 by the dotted line; *a* to *b* represents the lever, and *b* to *c* the weight-line to be lifted; *d c* the gravity-line, *a* the axle, and *d a* the traction-line. As the lever-line is to the weight-line, so is the power gained or diminished.

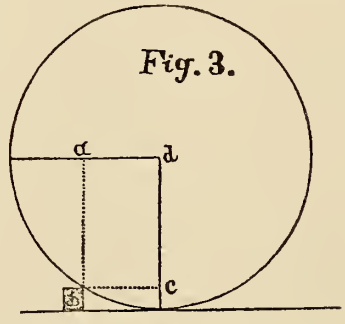


Fig. 3.

If the wheel, as applied to carriages, could be presented to us, a new invention, the mechanical powers and the ingenuity of the inventor, in distributing those powers, could be explained so that we could perfectly understand the philosophy of all its operations, our admiration of his skill would hardly be limited. Our familiarity with the present invention has caused us to overlook many of the beautiful arrangements therein displayed.

The rim of a wheel is a self-adjusting fulcrum, which is always ready to accommodate itself to any obstacle—making a fulcrum of it to lift the weight over the obstacle, providing the obstacle does not exceed in height the distance from the ground to the line of traction.

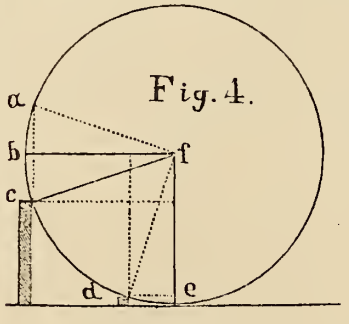


Fig. 4.

Fig. 4 gives three traction lines—*f a*, *f b*, *f c*. *d* is the obstacle which

the rim of the wheel makes into a fulcrum. The traction-line which would secure the most power to lift the wheel over the obstacle, or fulcrum *d*, would be the *f a* line, because it would be 90°, or at a right angle with the fulcrum *d*. If the traction-line was carried any over 90°, it would decrease the power just the same as if it was carried under 90°. Observe the distance of the lever and the weight-lines which extend at right angle from the fulcrum *d*, where the lever intersects the traction-lines; it indicates the amount of leverage gained to move the wheel over the obstacle *d*. The weight-line always extends from the fulcrum to the gravity-line (as we have named it), which we have no means of shortening; but it is different with the lever-line; it can be lengthened or shortened by the direction we give to the traction-line. In Fig. 4 we see where the lever-line intersects the traction-line *f a* the lever is the longest; where it intersects the traction *f b* it is shorter, and where it intersects the traction-line *f c* it is the shortest. Now, as the lever-line is to the weight-line, so is the power gained or lost, providing the traction-line does not form an angle of more than 90° from the fulcrum. If we raise the obstacle to the wheel in Fig. 4 to *c*, and the traction to *f a*, we have some lever power, but the weight-line preponderates; and if we lower the line of traction to *f c*, one of the essential parts of the lever is destroyed, and all the powers of earth could not draw the wheel over the obstacle without changing the line of traction.

Again, let us suppose Fig. 4 a wheel propelled on a perfectly horizontal plane, without any obstacle to hinder its progress: then the line of traction, to secure the most power, would necessarily be on the horizontal line *f b*, which is 90° from the gravitation-line *f e*. This is securing power that is not wanted, and cannot possibly be used. All that is necessary to overcome in this case is the friction at the axle, which is done by the traction-line operating immediately on the axle, without any lever-power whatever by the wheel. It can be seen the weight has no fulcrum to measure from; therefore, one essential part of the lever gone, the whole is destroyed.

From these examples we can set one thing down as positive: that obstructions always occur to the wheel in the direction that it is drawn; therefore the traction-line must be raised above a horizontal-line, in that direction, both to the forward and hind wheels of a wagon.

(*To be continued.*)

Home Circle.

For the New York Coach-maker's Magazine.

MISS FRANKLAND AND HER LOVER.

BY A LADY CORRESPONDENT.

Counting over the intense friendships of my girlish years—you know that's what my teacher called them—not one of them all is missing, though 'tis "an age," as we used to say, since my last school-days were numbered; not one of them all has disappointed me; there's not one that I do not love to recall. Turn with me, one by one, the leaves of this Flower-book, and I can give you the history, in full, of every one whose name is written on its pages,—I mean, of course, so far as each one has completed her record. Alice's you know already. How sad that it should have been so brief! Yet better so than——. Ah! you've opened at a gloomy page. Well, you shall have the story it suggests; but first let me say I had not learned it when I placed that leaf of night-shade there. Indeed, but for that significant leaf, I might never have been led to inquire particularly about one for whom, as you know, I never formed an "intense friendship." By some means this book one day fell into my teacher's hands, after I had written her name, Margaret Frankland, beside the night-shade. She recalled at once the remark she had made to me on a former occasion, the propheey with reference to my intense friendships, and understood the feeling which prompted me to insert there her name and emblem. When the book came back to me I found these lines inscribed in her own hand. You see she calls them—

A HISTORY AND A PROPHECY.

A maiden sings in her fairy bower,
While counting the buds of spring,
"Ye are fair, but there's many a fairer flower
For me just blossoming;
And they will not fade and die
In the autumn-time, but, aye,
They will wear the bloom of spring."

"Poor, fragile things! *ye* soon must droop,
But *those* I may keep alway;
Those blossoms of Friendship, Love, and Hope,
I've bound in a bright bouquet."
Thus the maiden sang, nor dreamed
That aught, so fair that seemed,
Could ever know decay.

The buds of that bright spring-day
Have oped to the summer's ray;
Deeper is each leaf's bright glow;
Not a flower hath drooped, but, oh!
On the maiden storms descended,
And the flowers she loved and tended
With such care are fading, dying,
Scattered in her pathway lying;
Friendship, Love, and Hope may never
Bloom for her again forever.

Now don't accuse me of romancing, for the facts I am about to relate were gathered from a "reliable source." At twenty, Margaret Frankland was a pretty girl. "No one would think it now!" No! for her beauty was of that style which depends wholly upon delicacy of complexion, and sweetness of expression, rather than upon regular, beautiful features. She had always been a general favorite in society, not so much for her pretty face as because of the peculiar fascination of her manner. The circle in which she moved included the friends with whom she had grown up, though of course it had kept widening every year. She seemed to enjoy the society of all—that of ladies and gentlemen equally well—having no special favorite either among the former or the latter; and while it was true, as I've said, that she was a general favorite, and received many polite attentions from her gentlemen friends, no one seemed to think of winning her special regard for himself until two years previous to the time of which I speak, when Frank Boyer, a young man of twenty-three years, came, a stranger, to Eaton, and established himself in business there. Now, Mr. Frank Boyer was not "a ladies' man," and for awhile his indifference to the gentler sex was the subject of remark among the gossips of the place: but it was not long before

the gentlemen began to complain among themselves that this new-comer monopolized quite too much of Miss Frankland's time. However, as the lady didn't seem at all annoyed, no one felt at liberty to interfere.

Two years had passed, and still young Boyer was unremitting in his attentions to Miss Frankland, and still she gave no sign of weariness, and *report* said that they were not only engaged, but that they were very soon to be married. Neither statement was correct, and yet probably both would have proved true, but that Frank delayed his proposal a little too long, and in the meantime Margaret received and accepted a proposal of a very different character. A friend of hers who had been teaching in the Female Seminary, at Greenfield, died suddenly, and the Principal earnestly requested her to fill the place thus vacated during the scholastic year which had just commenced. At almost any former time she would have been well pleased to accept such an offer, but now how could she leave her home? Frank had become very dear to her—necessary to her happiness—though she had never before acknowledged this, even to herself. But, was she equally dear to him, was a question which she could not answer satisfactorily. He had never spoken to her of love, nor had made any allusion whatever to the future. She feared she might have misconstrued his attentions,—but then, he had been so very devoted to her, that others had ceased their attentions altogether. The result of her deliberations was, that she reluctantly accepted. If Frank's regard for her was such as leads to marriage, it was quite time, she thought, that he should declare it, and the step she was about taking would test him. If otherwise—if his friendship was but brotherly—it would be far better for her to give up his society at once. Business had called him out of town only the day before she received this important communication, and it was uncertain when he would return. Her reply must be given immediately, and if she accepted, her presence, also, would be required without delay. A note of acceptance dispatched, she penned a good-by note to Frank; but, looking it over, it seemed to her, in view of all the circumstances, quite too tender, so, laying it aside, she wrote:

"Frank, I'm sorry not to see you before leaving. I am called away unexpectedly, but you will learn the particulars from others. I've only time to say good-by.

"MARGARET."

Friday of the same week found her entering upon her new duties, and before another week had passed she had made the acquaintance and won the affection of all her pupils. As time went on she became interested in and liked them all, but there was one whom she loved from the very first. No one with Miss Frankland's appreciation of the beautiful could look on Isabel Anderson and not love her. Every feature was perfect, and in the ever-varying expression of her countenance her every thought and emotion appeared to be faithfully mirrored. Just eighteen—in her bearing there was girlish grace blended with womanly dignity. So far as her teacher could judge, she was lovely in character as in form and feature. Miss Frankland had come thither a stranger; she found her associate teachers polite and pleasant, but soon discovered that their tastes and hers were wholly dissimilar,—there was no bond of sympathy between them. Belle Anderson knew this by intuition. She did not speak of it, but sought to supply, so far as a pupil could, the companionship her teacher needed. They seemed to understand each other from the first, and Miss F. was the recipient of a thousand delicate attentions which Belle had never given to any of the other teachers. School-girls have a wonderful faculty of finding out each other's unexpressed opinions, and it was generally understood in the school that "Belle Anderson, respectful as was her deportment toward her instructors, had always felt herself superior to them in all but position, but now they verily believed she had found her equal;" and thus was Isabel Anderson's private opinion publicly expressed when she herself had never thought of giving it utterance. Another Friday night had come, and Miss Frankland had sought the quiet of her own room to call about her pleasant memories. She had been sadly disappointed at not receiving from Frank a single line in all the four weeks that had elapsed since she came to Greenfield, but had been too busy to spend much time in grieving about it, and, if it had been otherwise, she was not so weak.

"Ah! excuse me; I thought you were out this evening, and entered without ceremony; but here is what insures my pardon," and Belle, snatching a kiss, was gone before her teacher could reply.

"Dear girl! how different she is from all the others here," murmured Miss F., as she proceeded to examine the post-mark and the superscription of the letter Belle had brought. In consequence of some one's carelessness it had been delayed by the way. Two weeks since its date, and it had but just come to hand! but no matter, it had come at last—*it was "from Frank."* Her face assumed a perplexed and angry expression as she read, and no wonder, for the note ran thus:

"Margaret, what fatality hurried you away from home on the very day of my return? Your note, brief as it is, and, more than that, your departure at all, requires an explanation, which I do not demand now, preferring to wait until we meet.

"FRANK."

"*Demand* an *explanation*, indeed! By what right, I'd like to know;" and she crushed the paper indignantly in her hand. "What was the matter with the note? Too brief was it, for one thing! It was more than he had any reason to expect, that I should write at all. Did he ever leave me a single line when he was called away unexpectedly, as has often been the case? Never once! It *was* brief, as it should have been; and kind and polite, as his *is not*. My departure, too, calls for an explanation. Does he presume" ——. Here a smile chased away the angry flush which her face had worn, and by the tenderness with which she smoothed the crumpled paper it was evident that his presumption was forgiven. "Preferring to wait until we meet: and when is that to be?" The question was answered sooner than she expected, for just then a knock at her door was followed by a summons to the parlor. Her heart told her who waited for her there. It was a strange meeting for lovers. The smile of joy passed from Miss Frankland's lips, and the glad light from her eyes, and her face put on a look of indifference as Frank, instead of clasping her proffered hand, only bowed, and placed her a chair directly opposite his own.

"I was not expecting you," she said, indifferently.

"Probably not; and yet," he added, "the surprise may not be more unpleasant than the anticipation would have been."

She replied, carelessly, "I suppose *politeness* requires me to say that, although the surprise is a most agreeable

one, the anticipation would have made me happy for a greater length of time."

"And what does *truth* require you to say?" he asked.

"Nothing!" She felt, but did not seem to notice, the earnest, questioning look which he kept fixed upon her.

"Do you mean to say that you would have preferred not to see me?"

"Oh, no! I don't mean to *say* that. Just think how impolite it would be!" and she laughed as lightly as if she were in nowise grieved by his unkind and unreasonable manner.

"'Don't mean to *say* it;' then you *do mean* it?"

"Well"—and the lady hesitated in the most provoking manner—"no! I'm as well pleased to see you as I would be to see any one else this evening; but you called me away from the perusal of a most interesting communication I had just received."

"Just received, did you say?"

"Yes; this evening."

"From a lady?"

"No."

"Do I know the writer?"

"Why," and she assumed a tone of surprise, "how should you? I have a great many correspondents."

"And this is a most interesting one."

"Yes; perhaps the most so of all of them."

"Margaret Frankland, are you a coquette?"

Her eyes met his with a look as steady as his own as she replied, "No gentleman has ever brought such an accusation against me."

"But if I should make it now, what then?"

"My last remark would still be correct."

"Margaret!"

"Well?"

"One month ago I thought I understood you perfectly; now you are a mystery."

For the first time his tone was sad, and Margaret, dropping her air of indifference, replied, with an earnestness he could not fail to understand, "No! it is you who are so changed. One month ago we were, as we had always been, good friends. Business called you out of town, and during your absence I, too, was called away. I left a good-by note for you. It was polite and kind; your reply to it was neither. You have this evening"——

"'Polite and kind!' had I not a right to expect more than that?"

"*What* right?"

"That of a *lover*. You know—you *must have* known—that from almost our first acquaintance I have loved you. My whole conduct has proved it more than any protestations could have done. Your manner has been such as to assure me that my motives were understood and my offering accepted, or I should not have remained silent on the subject. When I left Eaton it was with the intention of writing you immediately; but finding that business would not detain me, as I had expected, I looked forward to a happy meeting with you, when we should make arrangements for our marriage at an early day. You can imagine better than I can tell what were my feelings, on returning, to find that you were gone, and had left me only two or three lines,—polite enough, certainly, and kind enough, had you been a mere common acquaintance; but referring me to others for what I should have learned from you. Do you wonder that I was indignant?"

"I wonder at your being *unreasonable*."

"You know 'tis said that love and reason never bear each other company. *I* don't believe it; but let that pass, and tell me that your indifference this evening was all assumed."

A smile was her only answer.

"Shall we go back, Margaret, to the old ways, and be again friends, lovers?" This time he did not refuse to clasp the hand she offered.

"And Margaret"——.

"Well?"

"What about that most interesting communication?"

"It is here!" and she held up his own note.

"I had no idea that you were such a tease."

"Nor I, that you were so quarrelsome."

"You will go home with me?"

"I cannot."

"When shall I come for you?"

"I cannot leave until next summer."

"'Next summer!' you jest."

"No; it is a great disadvantage to the school to change teachers during the year. My engagement was for that length of time, and our Principal will not release me until its close."

"And is your Principal's claim stronger than mine?"

"Yes, for it was established prior to yours."

"But you look tired already; you'll be worn out by that time."

"Then I'll take another year to recover my health and good looks."

Frank fretted, and scolded, and upbraided, but it was all in vain. It would be unjust to the Principal, and dishonorable to herself, and she would not break the engagement. He went away almost as dissatisfied as he came.

"Frank must have everything his own way, or we shall both be unhappy"—Miss Frankland reflected as she listened to his retreating footsteps—"and I shall *love* to give up my will to his when——. But he shouldn't expect it now, that it would interfere with the claims of others."

(*Concluded in our next number.*)

Pen Illustrations of the Drafts.

LIGHT SHIFTING-SEAT BRETT.

Illustrated on Plate XXIV.

We have kindly been permitted to make this drawing of a light shifting-seat Brett from a design by our friends, Messrs. Swenarton & Williamson, of this city. The distinguishing peculiarity about it is, that the front inside seat is so contrived that, if required, it may easily be detached from the body, when it is transformed into a Victoria, with a dickey seat, at once light and elegant. The wings in front are lengthened by a projection underneath the shifting seat, formed of wood. This front seat, in our example, is paneled and painted, but might be caned with advantage, or painted in imitation, with good effect. The seat is secured to the rocker of the body by four iron pins, easily removed when necessary.

PHYSICIAN'S CLOSE PHAETON.

Illustrated on Plate XXV.

Such is the occupation of physicians that it exposes them to all changes of the weather; and, not unfrequently, premature death is the result. A remedy, in some measure, is provided for this class of men, by carriages such as we give this month. This may make too expensive a vehicle for some, but will just meet the wants of others. In addition to the glass shown in profile, another is used to close the front in wet weather, and is let down when the weather is pleasant. Provision must be made in this front to pass the lines through for the driver. The perch-coupling (which, so far, is public property) is just the thing for this kind of a carriage. To those who have courage enough to withstand a call from the *soi-disant* patentee, this hint will be of some value. To those who cannot bear impudence we say, let perch-couplings alone.

TROY BUGGY.

Illustrated on Plate XXVI.

Numerous as are the designs in the Buggy line in this country—of which our pages present many varieties—still, we find something new almost every day. One of the latest is the Troy Buggy, which is, at present, very popular in that city. We believe it originated with Mr. E. Chamberlin. As a tasty and beautiful Buggy for business purposes it is unequaled, and, when made very light, is equally convenient as a pleasure vehicle.

The body, as an inspection of the drawing shows, is made much curved, and with considerable swell to the panel. The paneled boot and paneled seat are both formed with rounded corners at the back, which, neatly painted, present a light and pleasing effect to the eye. The sunken bottom at the front end is necessary for the comfort of the passenger. Without, it would require too high a paneled boot under the seat to look well. Cloth trimmings are most appropriate in this kind of Buggy.

Sparks from the Anvil.

PATENT SADDLE-CLIP, FOR CARRIAGES.

Brewster & Co. *vs.* Miner & Stevens.

Some coach-makers in New York city and elsewhere having, without authority, used, in constructing light carriages, the clip illustrated on page 169 of our Second Volume, and, as is alleged, among them the plaintiffs, this suit has been brought to test the validity of the patent. Many contend that the invention is old; but in this particular suit the defendants rely for a verdict in their favor chiefly because they have never used said clip in connection with the yoke and axle forged solid. We are, in consequence of the great interest manifested by the trade in the result, induced to devote a large proportion of our pages to a verbatim report we have taken of the testimony offered in Chambers, Oct. 25, 1861, before the Commissioner, Richard E. Stillwell, Esq., for the United States Circuit Court of the Southern District of New York. This proceeding is understood to be preliminary to bringing the case before a jury in an equity suit for infringement, for the purpose of economizing time. Our report embraces the first day's testimony.

The first witness placed upon the stand by Mr. Washington Murray, attorney for the plaintiffs, was *Gustavus L. Hausknecht*, who, in answer to the usual questions put in such cases, stated that he was 38 years of age, and by occupation a carriage-maker, and had been connected with the business for about twenty-three years. The Letters Patent, marked as Exhibit A, having been handed to the witness and examined, he was asked:—

Do you understand the contents?

Answer. Yes, I do understand the contents.

Question. Have you any knowledge of combining the wood and iron part of the hind axle together by a single-clip?

A. Yes, and also its combination of securing the spring to the other parts, which is useful and practicable; I mean the manner and patent as marked Exhibit A.

Q. Is the specification ambiguous or clear?

A. The specification of Exhibit A is clear in its description, to enable others skilled in the art of coach-making to produce the improvements in the Letters Patent marked as Exhibit A.

Q. State when you first knew or heard of this mode of combining the hind axle to the hind spring by a single-clip?

A. In 1859.

Q. What, in your opinion, are the advantages, if any, of this alleged improvement?

A. It consists in attaching the wood and iron part of the hind axle rigidly and firmly, so that the spring cannot be displaced, leaving the wood and iron part of the hind axle stronger, by not putting holes through the same for holding and securing the spring.

Q. Has it any effect on the elasticity of the spring, and, if so, what?

A. It has some effect on the elasticity of the spring, allowing more perfect action to the spring by being fastened centrally, than it would have if the fastening of the spring was placed on both sides of the center by means of two bolts.

Q. What, in your opinion, is the difference as to the utility between this method and any other you ever saw or heard of for fastening the hind spring and axle together?

A. The method of combining and securing the spring to the iron and wood part of the hind axle, as described in Exhibit A, has various advantages over any other mode of fastening the springs to the wood and iron part of the hind axletree.

Q. Have you given any attention, and, if so, what, to the improvements or patents upon wagons or carriages?

A. I have given some attention to them. I have obtained three patents from the Government for myself,

and generally pay some attention to all the improvements that come to my knowledge.

Cross-examination by Mr. E. W. Stoughton for defendants.—*Q.* What trade did you learn, and what trade have you followed?

A. I learnt carriage-blacksmithing and have followed that trade.

Q. Where did you learn it?

A. At Berlin, the capital city of Prussia.

Q. When did you come to work at that trade?

A. In the year 1853, when I was in business of manufacturing carriages.

Q. Where were you in that business, and for what length of time?

A. I *were* in that business in the city of New Haven, State of Connecticut, in the year 1851, to the year 1854 or 1855.

Q. Did you make light road wagons there?

A. Did not manufacture any light road wagons as they are called here in this city.

Q. Did you ever manufacture any wagons containing the kind of clip described by Lawrence in his patent?

A. I have not.

Q. What has been your actual employment since you have ceased to carry on the business you have mentioned, and what is your present employment?

A. I was first engaged to take charge of manufacturing carriage springs, and after that I was selling one of my patents and collecting for infringements of the same, *and that is my present business.*

Q. Do you mean to be understood as saying that it is not and has not been any part of your employment to seek to collect moneys or claims of those said to infringe upon the Lawrence patent on which this suit is brought?

A. I have been selling and collecting, under the patent for which this suit is brought, recently, and I hold the power of attorney now to collect and sell for the Messrs. Brewster & Co. under this patent.

Q. What are you to receive for your services in selling and collecting under this patent?

A. I receive a certain commission out of the proceeds of the sales and collections.

Q. What proportion of the proceeds of such collections are you to receive?

A. I receive the general proportion of the proceeds, namely: 50 per cent. therefor,—I paying all expenses for traveling and making the sales and collections.

Q. Have you got that power of attorney with you?

A. I have not.

Q. Will you produce the same before the coming—[Here the attorney for plaintiffs tells witness that he is not bound to answer without proper notice from the other side, and being paid witness fees.]

A. I have no objection to produce it.

Q. Will you do it?

A. If necessary, I will,—for the purpose of taking a copy.

Q. Will you do so at the next meeting before the Commissioner?

A. I will, if I have the same in my power.

Q. Have you any doubt that you have not got it now?

A. I have no doubt that I have got it now.

Q. Where in particular is it?

A. It is among my papers which I use when traveling for collecting and making sales. It is at my house, in the city. [Here the defendants' counsel requires the witness to produce the power of attorney alluded to, at the next meeting before the Commissioner.]

Re-direct examination by Mr. Murray.—*Q.* Have you given any attention to the hind spring and to the wood and iron part of the hind axle of light wagons?

A. I have given some attention to the manner of securing the hind spring to the axle. I have seen the said spring secured, in different mode and manner, to the hind axle. The attention I have given to the mode and manner of securing the hind spring to the axle, in various manners, has been during the time I have been engaged in the business of carriage-making, and more particularly so in the later years.

Q. How many years?

A. Well, say for the last three or four years.

Q. Where do you carry on your present occupation,—in this city or elsewhere?

A. My present occupation extends to various parts of the United States. I have been for the last year, most of the time, in the city of New York.

Q. Have you any pecuniary interest in any verdict that may be obtained against defendants in this suit, or may be given in favor of complainants?

A. I have not.

Cross-examination resumed by Mr. Stoughton.—*Q.* Do you mean to be understood as saying that you will receive no more if the complainants shall succeed in this case than you will if they fail?

A. I wish to ask the question, What is meant by no more? Of course I should like to get the question explained; if it means pecuniary for any of my services for the complainants in regard to this case? An explanation elicited the answer,—"No more."

Michael Ellis, on the part of complainants, called by Mr. Murray.—*Q.* What is your age, residence, and occupation?

A. I am 33 years old, reside in Ninth Street, N. Y., and am a carriage filer or finisher,—either one.

Q. You know the parties, plaintiffs and defendants?

A. Yes, sir; know them all.

Q. How long have you known defendants?

A. Twelve years or more.

Q. Have you been in the employ of defendants, and, if so, when, and how long?

A. I have been there six years or more.

Q. On more than one occasion?

A. Yes, sir; four times in their employ.

Q. State when you were last in their employ?

A. In 1859, up to December, 1860.

Q. What kind of vehicles did the defendants make when you were with them?

A. Manufactured light road wagons and carriages of every description.

Q. In what manner did they fasten the hind spring to the wood and iron part of the hind axle of their light wagons?

A. With a single-clip.

Q. How did they fasten? Give us the particulars as well as you can.

A. With a single-clip, with two side pieces running down on the side, with a bar on [under] the hind iron axle, with two holes in the bar to receive those side pieces, with a screw cut on the clip-ends, with a nut on to hold it stationary together.

Q. What did the clip hold?

A. It held the hind spring and iron part of the hind axle together.

Q. How was the clip made at the part that was over the spring?

A. With a leaf that runs four or five inches on the spring. [Here one of the counsel inquires,—How do you spell leaf? and is told, L-e-a-f.]

Q. Was that leaf loose or attached?

A. It was fastened with two bolts or rivets to the leaf, or the clip of the hind spring.

Q. Look at the diagram and specification of Exhibit A, and state how the manner therein explained and set forth, of combining the hind spring to the wood and iron part of the hind axle, compares with the method you speak of as having been used by the defendants; state how that compares with the diagram.

A. I partly understand the diagram, but cannot express myself as I wish to. I do not see any difference in either one, with the exception, Messrs. Miner & Stevens don't put on all the bars solid with the axle.

Q. Did they put on any solid?

A. They put on one that I know of; can't say of the rest.

Q. Since making your answer you partly understand the diagram. Have you examined any further the diagram and specifications? *Ques. repeated.* Have you examined the diagram any further?

A. I have, in the presence of the Commissioner.

Q. Now, those other single-clips — how were they made?

A. By a separate cross-bar on the under side of the axletree.

Q. In other respects how did the clip compare with the one described in the patent?

A. The same as in this drawing in Exhibit A.

Q. How many did the defendants make of single-clips of this description, with the lower part *not* forged solid with the iron part of the axletree?

A. I don't know, sir, how many.

Q. Did they make more than one?

A. Yes; they made a number.

Q. When first did you see or hear of the defendants combining the hind axle with the iron and wooden part of the hind axle on light road wagons in either of the ways you have described?

A. Previous to that time I lived in the country.

Q. How long previous?

A. I left New York in 1857, and came back in 1859.

Q. What did you do before you went into the country in 1857?

A. I worked for Mr. Mason and the defendants,—the latter some seven or eight years.

Q. During the period you worked for the defendants, previous to going into the country in 1857, did they make any light road wagons?

A. They did make as light as any other manufacturers in the city.

Q. Did they, during that time, use, in the construction of their light wagons, the single-clip secured in either the ways you describe—that is, in the period you were there before 1857?

A. They did not.

Q. Do you know of the defendants getting any notice relative to the single-clip described in the patent, now marked as Exhibit A? if yes, then what was the substance of the same?

A. I don't know as they did get notice, but I heard they did.

Q. Well, what did you hear?

A. I heard that Messrs. Brewster & Co. sent a notice not to use the saddle-clip.

Q. What do you mean by the saddle-clip?

A. The same clip described in the diagram.

Q. About what time, as near as you can recollect, was this?

A. Can't tell whether it was the fall or spring of 1860.

Q. After you heard this, viz., that Brewster & Co. had sent to defendants notice not to use the spring-clip, was any change made by defendants?

A. There was for a short time. I do not know as they were ordered to do so.

Q. After that short time what was done?

A. They put on the same kind as in the drawings.

Q. Have you seen any light road wagons completed about the premises of the defendants?

A. I have.

Q. Where? and what kind of a clip, if any, had they on the hind axle?

A. In the Repository of Messrs. Miner & Stevens,—in fact, all over. Some had bolts in; some had this kind of clip on, exhibited in Exhibit A; some had a round clip on.

Q. About what time, first, did you see road wagons with the hind clip, axle, and springs secured with a single clip in any manner about the premises of the defendants?

A. About 1860,—somewhere along in that year.

Q. How long have you been engaged in working upon carriages and wagons?

A. About fifteen years since I first commenced.

Q. Have you, during this time, any knowledge of the different modes of fastening the hind spring and the hind axle together? and, if so, what?

A. I have no further knowledge of the last invention. It was a good idea. [This answer not exactly suiting the attorney, the question was repeated.] Yes, sir, I had. The hind spring of the axle and wooden part were combined together by putting three bolts through the same; also they fastened with two single-clips. I believe this is the only way I ever heard of fastening them until I heard of this invention.

Q. What is your opinion of this invention as to utility?

A. It makes a stronger job; also neater on a light wagon.

Cross-examined by Mr. Stoughton. — *Q.* For whom do you now work?

A. Mr. John Stephenson.

Q. Did you, before going to work for him, work for Brewster & Co., the plaintiffs in this suit?

A. I did, sir, a short time.

Q. How long did you work for them, and when did you leave their employ?

A. I worked for them two separate times.

Q. How long in all?

A. About five months; left them in July last.

Q. You were asked on your direct examination to state in what manner the defendants fastened the hind spring to the wood and iron part of the hind axle of their light road wagons, and your answer was, with a single-clip, with

two side pieces running down on the side, with a bar on the hind iron axle, with two holes in the bar to receive the side pieces, &c. Was this bar to which you refer, as on the hind iron axletree, placed across the under side of such axle, and screwed tightly up to it by means of nuts upon the two side pieces?

A. The bar was made separate; with the exception of one, I can myself say was solid. There might have been more; but I don't know anything about it. The bars, with the exception of the one I have stated, were placed across the under side of the iron axle and screwed tightly up to it.

Q. Do you mean to be understood as testifying that the defendants, whilst you were in their employ, ever used, in even one wagon made by them, a single-clip, the lower part of which was forged solid with the iron portion of the axletree?

A. I do.

Q. When was that so used by them?

A. Well, I am not sure whether it was in the fall or in the spring of 1860.

Q. Are you sure it was so used either in the fall or in the spring of 1860?

A. I am not sure in which time; but it was in that year.

Q. At what time did you last cease to work for defendants?

A. Last December, somewhere about Christmas.

Q. What kind of a wagon was this clip put upon which you say was forged solid with the axletree?

A. A light wagon.

Q. Had it a top?

A. I believe not.

Q. Did you work on any part, and, if you did, on what part of that wagon?

A. On all the iron part. I filed it up.

Q. Who forged the lower part of the clip solid with the iron portion of the axletree?

A. Mr. James P. Mason, the blacksmith.

Q. Was he then at work for the defendants?

A. It was he done the job; yes, sir.

Q. What other persons in the defendants' establishment saw this wagon beside yourself and Mason?

A. That I don't know; I can't tell who saw it.

Q. Was it exposed openly, or was it kept secret?

A. I don't know whether it was kept secret or not; I do not think it was kept secret.

Q. Was it not kept in the same room with other wagons?

A. It was ironed off on the same floor with other wagons.

Q. About how many men then usually worked on that floor?

A. Well, I don't know exactly; I know pretty near all the men that worked there at that time.

Q. Were there not about as many as thirty?

A. I don't think there was as many as that.

Q. Were there twenty?

A. From sixteen to twenty.

Q. Who fitted the wood-work of this wagon?

A. That I don't know; but I think it was Wm. Edgecomb.

Q. Did you see the wagon after it was completed, ready for running?

A. I don't recollect, sir, that I did.

Q. Then all you recollect of seeing was the iron work in the process of finishing, was it not?

A. That is about all, to the best of my knowledge.

Q. Now, sir, with the exception of this one clip forged solid with the iron portion of the axle, can you testify, of your own knowledge, that you ever saw any other clip so forged solid with the iron part of the axletree in the defendants' establishment?

A. I have seen clips forged solid, but not solid on the axle; the bar was a separate piece. Before those clips came out I have seen bars solid on the axle, but not with such a clip as this.

Q. Those bars that you saw forged solid with the iron portion of the axle, before this clip came out, were bars used with the double clip, I suppose, were they not, and the clip king-bolt?

A. They were.

Q. How many years ago did you first see the arrangement, as last stated by you, employed?

A. Well, I can't tell the time exactly, but I saw the bars laying in the shop about four years ago, or somewhere along there, in defendants' shop.

Q. Did you ever see the bar forged solid with the axle, and the double clip used, and the clip king-bolt, before you saw them used by defendants?

A. I did not, sir.

Re-direct examination by Mr. Murray.—*Q.* You spoke in your cross-examination of there being a floor in the defendants' establishment on which the lower part of the single-clip was forged solid to the axletree; will you tell us how that floor was arranged?

A. Well, the way I understand it, it was about twenty-five feet wide, and one hundred and fifty long,—perhaps more.

Q. You speak in your cross-examination of there being from sixteen to twenty men working on that floor; were they engaged in one part of the room, or were they scattered in different parts of the floor?

A. They were scattered in different parts.

Q. You have testified in your cross-examination that you cannot say positively of your own knowledge of more than one single-clip being made by the defendants of which the bottom cross-bar was forged solid; what are your impressions as to that matter, if you have any, from your recollections?

A. Well, my impression is that there might be more,—perhaps none but that one.

Q. Was the double-clip you speak of placed in close proximity, or at a distance apart?

A. Distance apart, some four or five inches.

Nov. 25.—Examination resumed. *G. L. Hausknecht re-called by Mr. Murray of plaintiffs' counsel.*

Q. Have you found the power of attorney which the counsel for the defendants at the last meeting asked you to produce, and can you produce it?

A. I have found said power of attorney; here is a true copy of the same to be annexed to my deposition. Said copy is marked Exhibit B. I have the original in my hand.

Cross-examined by the defendants' counsel.—*Q.* Have you not made some agreement with the plaintiffs other than this power by which you are to receive a portion of the proceeds of the sales and collections made under the power of attorney, &c.? [Objection is here made to any cross-examination upon any matter except as to the

paper produced,—defendants having had full opportunity to cross-examine this witness previously.]

A. I have made an agreement by which I am to receive a general commission of 50 per cent. on all the proceeds of sales and collections under said power of attorney. Out of said proceeds of 50 per cent. I have to pay my own expenses in traveling and making such sales and collections.

Q. Then you are to pay the plaintiffs one half of the gross amount which you thus receive, are you not?

A. I am.

Q. Have you any interest, and, if so, what, in collections made by complainants themselves?

A. I have no interest in collections made by complainants.

Re-cross-examination by defendants' counsel.

Q. Where is the agreement by which you are to receive the fifty per ct.?

A. I have the agreement in my house.

Q. Will you produce that agreement?

A. I have no objection to produce it. [Counsel for complainants makes the same objections as on witness's former cross-examination.]

Q. Will you produce it at the next meeting, before the examiner?

A. I will produce it should I be in the city when the next examination takes place.

Q. When do you intend to leave the city?

A. That I cannot say, certainly.

Q. Do you intend to leave New York within the next fortnight, and, if so, when?

A. I expect to leave within the next fortnight, but don't know when I shall go.

Q. How long do you intend to remain away?

A. I don't know, as that depends entirely on what route I take; what business I have on hand.

Q. Where do you reside in New York?

A. At 81 Elizabeth st.

Q. Do you board or keep house?

A. I only keep a room there.

(*To be continued.*)

[ERRATUM.—On page 111, first column, seventh line from the bottom, for *plaintiffs* read *defendants.*]

Paint Room.

For the New York Coach-maker's Magazine.

HOW TO PAINT A CARRIAGE.

(*Continued from page* 68.)

Now the body is ready for the rough-stuffing, which should be made of about seven parts of yellow ochre to one of white lead, mixed in four parts of good drying varnish and one of brown japan, and about one fifteenth as much raw oil as you have of copal varnish and japan together.

This mixture should be stirred together as thick as it can be conveniently run though the mill. It is not best to grind it fine; but as near the same fineness as can be. After it has been run through the mill, reduce it with turpentine, so that it will work easy under the brush, and apply a good coat to the part of the body that has a large enough surface so that you can get at it with a pumice-stone to level it down. It will take five or six days for a coat to dry so that you can apply the next coat; and, as a general thing, three coats of rough-stuff will be sufficient for a carriage-body. Sometimes one coat will answer for a buggy; it depends, in a great measure, on the skillfulness of the wood-workman in getting a level and smooth surface on his job.

If he leaves hollows, there must be enough applied to fill them up even with the more prominent parts of the surface. After the body has got sufficient rough-stuffing on, it had better go to the smith, to be ironed and hung on the carriage. When it comes to the paint-shop again, the first thing will be to rub it down, so that you have a smooth and even surface, free from all dents, grains of the wood, tool-marks, or anything in the way of making a good, even surface, to put the finishing coat of paint on. This operation does not require any very great amount of genius, but there cannot be too much care bestowed on it. Saw the pumice-stone into blocks of a suitable size, and have by you a small, round file, so that you can shape the stone to fit the beads, if necessary; and a pail of water and sponge, to wet the work with and wash it off, while rubbing it down. Now wet the work with the sponge, and with a wet block of stone commence rubbing the part until it is smooth and level, rubbing carefully into the corners and close to the beads, so that every part is equally level and smooth. You will have to use the sponge frequently, to clean the paint and see if you are not rubbing through to the wood, or have got it rubbed enough. When the brush-marks are all rubbed out of your rough-stuffing, it will, as a general thing, be rubbed enough. There are often places found, after rubbing down, where there is a dent in the wood, so that the pumice-stone has not cut out the brush-marks; to remedy such places, take the putty that you have filled up the screw-heads with, and, if it is not soft enough, add a little varnish, so as to make it soft enough to spread under the putty-knife; then fill the hollow places more than even full, and after it has become dry enough, which will be in three or four days, rub it off with the pumice-stone, so that the surface is level and smooth. In rubbing down, if the stone scratches, or makes creases in the paint, or gums up on the stone, the paint is not dry enough, and should be left to dry until it gets so hard that it will not scratch. If, by mistake, you have rubbed through the paint, and wet the wood so as to raise the grain, when it gets dry rub off the raised grain with sand-paper, and put on the spot a coat of rough-stuffing, and when it is dry use a little linseed oil, instead of water, with the pumice-stone, which will not raise the grain of the wood, and, when it is rubbed off smooth, wipe the oil off with a rag. Now clean the body off with a sponge and water, and it is ready for the color.

It will be better now to commence the carriage part; and, in finishing that up so as to receive the color, I have adopted a different way from any that I ever have seen laid down, or in any way been taught; yet there are others who practice the same plan and keep it a secret. The old way is to mix the paint with enough turpentine to make it brittle when dry, then scour out the brush-marks with sand-paper; this rubs off nearly or quite one half the paint, and, aside from that, the turpentine evaporates and does not leave enough oil in the paint to resist the action of the atmosphere and protect the wood. Also, sand-papering off the poisonous paint and inhaling the dust is one cause of the unhealthiness of the trade. The way I

have adopted does away with these difficulties, and is much quicker done, and makes a handsomer finished job. Commence the carriage part by sand-papering off just enough to remove the specks that may have fallen on the paint.

If you are going to paint the carriage with any color which of itself will be a body, it will be well to prepare the paint of the color that you are going to finish with, unless the paint is too expensive to use for a body-coat; and, if so, you should use the paint that is the nearest to it in color and at the same time has sufficient body—for instance, for vermilion use red lead and Venetian red on the body or priming coat. White lead and lampblack, mixed so that it is a slate color, is a very good paint to give a body for any dark-colored finish. Mix the oil—which is prepared with one fifth japan—with one fourth as much turpentine; and when you want to reduce the paint, do it with this mixture, so that the paint will be alike in turpentine dryer. Dust off the work clean, and put on a coat of paint that is well ground, and perfectly clean from all skins, dirt, or specks of any kind.

After the paint has stood a while, so that the turpentine has evaporated, commence by rubbing it with the palm of your hand and fingers, so that you obliterate all your brush-marks, and fill up the coarse grains to the timber by crowding the paint into them. Use a leather in corners where you can not smooth with the hand, and use the leather on the springs, or any other flat surface, and then brush it over with the hand. In this way the work is very easily brought down to a smooth, polished surface.

After the second priming-coat has got dry, you can putty up all imperfect joints or checks, and all places where the iron does not fit to the wood closely on the felly, or any other part. After this coat of paint is well dried, sand-paper it off as before, just enough to remove the specks which may have fallen on while the paint was drying; and if you discover any place in the corners where you have not smoothed it down with the hand, it will be best to smooth it with sand-paper, and then apply another coat, and go through the same process of rubbing down with your hand. Three coats will be enough in this way to give sufficient body for the color. It will fill the grain of the timber so that it cannot be seen, and makes a smoother and better coat than any other way I have tried. I think it saves full twenty-five per cent. in painting a carriage.

You will now want to put on two coats of color which you want to finish with, and you will observe the same process about smoothing it down. Also, remember that what makes paint and varnish crack after it has become dry, is, that it was not perfectly dried when the coats were being put on.

While the carriage has been painting, the irons on the body, and all places where you do not use rough-stuffing, should be worked with the same paint in the same way that the carriage has been; so that the wood gets three and the irons two coats of paint, and then the body is ready for the color.

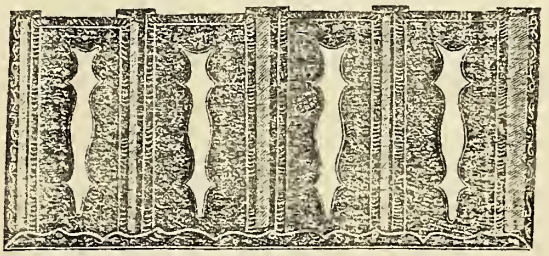
The color should be ground fine; and perhaps you will find it better to use more turpentine in the paint than you have for the carriage-part. You need a room that is clean, and where no dust will be raised while the paint is drying, and you must have a soft, flat brush (called camel's-hair), about 2½ inches wide, and those are best when the brush-part is only about 1½ inch. long. Examine well to see that there are no loose hairs in it, that will come out while painting. The surface of the body is now smooth and level, and the object is to get two coats of paint on for finishing, without leaving brush-marks, or any thing to destroy this smooth, level surface; therefore be sure and have your paint mixed so that it will run off from the brush easy, and be spread without bearing hard on the brush. It is best to try the paint before you commence laying it on the body, and, when you are sure it will work easy, lay it on the body as briskly as you can, and do it well, finishing it up with light brushing. After it has got dry enough for the second coat, rub it over with curled hair, so that it takes off all the specks; and it will have a tendency to flatten down the brush-marks which are hardly perceptible. One more coat in the same way finishes the body, ready for striping. H. H.

(To be continued.)

Trimming Room.

DESIGN FOR A SEAT-FALL.

A WESTERN correspondent has sent us this very neat pattern for a seat-fall, laid in plaits, and finished with



stamped edges and white leather center-pieces. A piece of patent leather, stitched with white, covers the top. It will, no doubt, please some of our friends in the country.

PATCH-WORK.

SOME TRIMMERS are in the habit of *trying to clean* their leather, after it is made up, with a *dirty* rag and *dirty* water. This is wrong. Purchase and keep on hand for this purpose a chamois-skin. This, if carefully used, will last a long time. When it becomes dirty from usage, wash it out thoroughly with castile soap; let it dry, and then soften it again by rubbing.

WE think that cloths for carriage-linings will advance in price, for the U. S. Government has recently bought up all the blue cloths to be had in New York, for military garments.

EXPLANATION OF STITCHING-PLATE N.

FOR this plate, figures 1 and 2 are from Mr. Clarke, of Penn Yan, N. Y. Figures 3, 5, 6 and 7 are from Mr. Ralph Smith, New Haven, Conn.

Nos. 1 and 2 are center-pieces for buggy-boots; the last in half-figure.

No. 3 is designed for the half-figure of lazy-backs.

Nos. 4 and 5 are for the corner figures of dashes, boots, &c.

No. 6 is an original design for a bow-cap.

Nos. 7 and 8 are designs for inside holders of Rockaways, &c.

The New York Coach-Maker's Magazine.

JANUARY 1, 1862.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

BOUND VOLUMES *of this work are sold, singly, for* $3.50 *per vol., or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

COVERS, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

POSTAGE.—*The postage on this work is* 3 *cents per quarter, paid in advance. Our friends will report to us all Postmasters charging more, and we will have the matter set right.*

STAMPS.—*The old issue of stamps are worthless. The new* ONLY *will be received in pay for the Magazine, hereafter.*

☞ *All letters directed to this office on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*

PUBLISHER'S SPECIAL NOTICE.

CIRCUMSTANCES are such that we have come to the final determination, until the close of the present volume, to issue a number of this Magazine once in two months, instead of monthly, as heretofore. The next number, for March, will be ready on the 17th of February. Under this arrangement the fourth volume will extend all through the year 1862, and be sent to all our present subscribers. By that time we trust our national troubles, which have so effectually destroyed trade and deranged finances in all sections of the country, will be settled, and peace and prosperity once more return. Our further publication will be announced in Number Twelve.

In taking this new course we have no intention of making it anything more than temporary, for we have many reasons for being satisfied with our enterprise, and only make this change in deference to the wants of the public. Even with the stoppage of the Southern mails, and the closing of the greater portion of the carriage manufactories at the North, which seriously abridges the usefulness of a publication like ours, still the sales of the work up to this time have returned to the publisher the costs of paper and press-work.

Under the new plan of issue, during the war, the advantages of our Magazine, both to advertisers and readers, will be very much enhanced. Advertisements will be placed before the public, double the time, for the same price, as heretofore, and subscribers will get the fashions of two years for three dollars. Those who already hold receipts for subscriptions "from June, 1861, to May, 1862, in full for Volume Four," will understand that the time is extended to embrace the volume completed. In the meanwhile we hope our friends, to whom we can supply all the back numbers, will continue to send in their orders, and thus cheer us on in our labors. Those who still owe us for the current volume will please take the first opportunity to send us the pay, or we must stop their Magazines.

We would, in conclusion, remind our friends that we have a few complete sets of this work from the commencement, in numbers and bound, which we shall be happy to find customers for.

COACH-MAKERS ENCOURAGED TO STUDY.

ALTHOUGH we are willing to allow that coach-makers as a body are quite as intelligent as any other class of mechanics, still it must be conceded, by all who have given proper attention to the subject, that there are a great many among them who do not apply their minds to the study of such books as serve to expand the intellect and improve their mechanical education. Instead of searching for a reason why a thing should be done thus and so, they are content to go on in the slip-shod manner of their ancestors with their carriage-making, while they spend their precious leisure time in reading the flashy literature of the day, the tendency of which is only to gratify a depraved appetite and muddle the brain. This is one reason why there are so few among us, comparatively, capable of taking charge of and managing the business they have selected as a life-occupation. They complain that the business is a mean one, not considering that their *mean* procedure is the cause of their discontent; and that, had they taken the pains to study their trade *scientifically*, they might have elevated themselves and their occupation in the estimation of their neighbors, both at the same time. If, as has been said, "knowledge is power, is wealth, is honor," that once in possession, cannot be without its beneficial results.

Let us for a moment look at the results of study. Among those exalted to honor in our own country are many men who were once journeymen mechanics (some of them coach-makers), but who now occupy a leading position in the affairs of State. The most of these are self-made men,—made such by close application and study. There is not, we believe, a solitary individual in this country who has, from an humble, elevated himself to a high, position in society, but has been and is a man of study,—a man that searches into the laws of cause and effect. A man can educate himself as well in his workshop as in any other place; can prepare his mind for success in his particular branch of business, or for position in the National Congress. Is there not as much brain among mechanics as among lawyers, merchants, and others? If so, then why do they not march directly from the workshop to the halls of legislation without the circumlocution of professional practice first? The an-

swer is, they do not try; and while the brain is sleeping over the doses of literary trash taken into the head through the eyes, they neglect to exercise those powers the Creator has favored them with in a crude state, and which He leaves them to properly refine and enlarge by industrious application to the searching out the hidden mysteries of scientific knowledge.

If our readers will take the trouble to accompany us through the workshops of the land, they will discover that those mechanics who rise to foremen and employers are such as have elevated themselves by application and the study of proper books. They aspired to be somebody, and used the best and only proper means to secure the desired ends. It is a well-settled axiom that worth and intelligence *will* command respect from those whose respect is to be prized, and although wealth is sure to follow worth, yet the "honor" alone that attends intelligence is sure to remunerate any one for all his trouble. Industry, honesty, and intelligence, combined in an individual's character, are sure to crown him with power, wealth, and honor, in due time.

The coach-maker who desires to perfect himself in the art, is peculiarly favored at the present time. With a publication specially devoted to the literary, social, and mechanical interests of *his* craft, crowded with original information from every section of this Republic, and gleanings from the European press in addition, he has no excuse for ignorance in his business. If he does not rise in the scale of intelligence to the perfect mechanic—to the honorable man among his cotemporaries—it is because he *will not* avail himself of his privileges; because he chooses to stultify himself against all that is calculated to render himself respected and honorable among his fellow-men. If a mechanic wishes to ameliorate his condition, a certain degree of enthusiasm must be exercised in his business, and every available means in the pursuit of knowledge connected with it improved. In your relaxation from toil study the fundamental principles of your trade, and struggle to learn the why and wherefore of everything connected therewith; bring to your aid the essential qualifications necessary for making the perfect workman—a mechanic that will have no occasion to be ashamed of his work.

To ignorance is attributable the chief complaint and dissatisfaction found among mechanics in regard to their special business. We have heard coach-makers assert theirs to be the meanest business followed; and, strange to say, some in other trades declare the same of theirs. Who may be the judge here? Shall this be left to ignorance for decision?

OUR PRESENT NUMBER.

Without designing to boast, we hesitate not to say that, for originality and general interest, the present number is one of the best we have presented to our readers since we originated this enterprise. Thanks to our attentive correspondents, although carriage-making is at a low ebb this season, on account of the war among us, still we have thus far found matter enough to preserve variety and value to our pages. Among the first articles of the present issue, in novelty and practical worth, is that of our friend and fellow-craftsman, "H. H.," whose modesty forbids our giving his name in full. The previous article, in our October number, has created quite a stir among our exchanges, and we hope that his articles will receive proper attention and study among our readers. We have received from the author the following remarks:

"I have not the least doubt but that I am perfectly correct about the lever and weight lines, and, to close up, I have well authenticated practical experiments to prove the truth of the theory, as well as the usefulness of it. The article from the Encyclopedia just published is very near correct in regard to the lever power, but not quite. Mr. Anstice, in not defining the exact nature of the lever, and how it could be measured, left out an important link, which I hope I may have the pleasure of supplying, and at the same time hold him and his teachings in respectful remembrance. I have the most positive proof that we are making *all* the sacrifice, and more, too, in not building wagons and carriages so as to save all the motive power that my figuring in the first article made it. The next thing is, how can the outsiders be made to understand how much they are losing? If you can contrive any way to make the subject generally understood, you would confer a great benefit on the world at large."

There will be added to the present several articles more on the same subject. After a long intermission, our fair correspondent, Lua Delinn, has favored us with an original story, which our compositor (and he is a good judge) pronounces excellent. This will be finished in the next number. Our drafts will speak for themselves. The "saddle-clip" trial, of which the first day's examination of evidence is given under head of "Sparks from the Anvil," will appear, as taken, in future numbers, and of itself is worth more than a year's subscription to our Magazine. But we need not particularize; our readers have the proof of our determination to leave no opportunity untried in our endeavors to make the Magazine as useful, as it is distinguished by press-work and paper, among the publications of the present day. Will they not recommend the interests of our enterprise to others?

ADVERTISEMENTS IN WAR TIMES.

None but publishers can properly realize the blighting effects which civil war produces in business advertising. For our part, instead of the fifteen pages *engaged* and the eleven *in possession* when our troubles began, they are now reduced down to three. These are monopolized by men who are not frightened by trifles and whose responsibilities are unquestioned. We trust our friends will

remember, and accord them a good share of their trade. In this connection we cannot omit to return our unqualified thanks to advertisers for the liberal favors hitherto shown us, and trust that when the war is over, as they have promised, they will remember us again.

LONDON INTERNATIONAL EXHIBITION.

The commissioners appointed by the President of the United States to represent the interests of Americans in the great exhibition of the industry of all nations, in London, this year (1862), give public notice that class 6, which embraces "carriages not connected with rail or tram roads," have been placed in section two, which will compete for prizes in the form of medals, and must have been produced since 1850. Applicants for admission of articles must address B. P. Johnson, Esq., chairman of the executive committee, whose office is in the Department of the Interior (No. 10 Patent-Office Building), Washington, D. C., and have their goods ready for shipment from New York by the 1st of January. It is expected that a vessel will be furnished by the Government for conveying to London and return, free of charges, the articles entered and approved for the exhibition. We have not yet heard of any preparation made by coach-makers for this exhibition, and fear that the "hard times" among them will render our representations in London small; but, large or small, we hope to have a report on American carriages for our Magazine, from our London correspondent, who is himself an intelligent coach-maker of that metropolis.

The Coach-Maker's Letter-Box.

LETTER FROM WISCONSIN.

BERLIN, Wis., *Dec. 3d*, 1861.

MR. E. M. STRATTON:—*Dear Sir*, I want to hear that the circulation of your Magazine is going far ahead of any time before the war, not particularly on account of your own pecuniary interest, but for the purpose of diffusing knowledge in places where it is so much needed, upon subjects that are of such vital importance to the whole community. As for myself, I neither make nor sell carriages; but I have had my attention placed upon the subject, and I notice so many bad practices and fashions introduced that I am awake to the necessity of having a work of the kind placed in the hands of every man who makes a wagon to sell.

A few days since a New York varnish-maker called on me to have me order a supply of varnish from his manufacturing company, and recommended his varnish very highly, as did also an acquaintance of mine who had used it. I was in want of some at the time, and so began to make inquiries about it. I asked if his company did not advertise in THE NEW YORK COACH-MAKER'S MAGAZINE. He said they did not want any better advertisement than the quality of their varnish. I told him at once that I would not take any of him. He urged me to take it, offering it on six months' time, which would have been very acceptable, but I dare not buy of a man who would not place himself on the record as a maker of varnish. On the same principle, I would by no means buy a wagon of a man who was so penurious and foolish that he would not take a work that was calculated to instruct him in the art of building wagons or carriages.

The immense amount which is lost yearly in the States, and which might be saved by more generally distributing knowledge about building carriages, would pay for more than one copy of the Magazine to every man who pretends to make a wagon. If men will go so blindly into work which requires so much knowledge, and still keep their eyes shut, it is certainly high time that their patrons refused to buy their work.

How can this thing be remedied? is a question that I have asked myself more than once. As it is, mechanics are becoming a scoff in the world; when a correct and full knowledge of their trades would place them on an equal footing of intelligence with the lawyer, doctor, or divine, or any of the professions which command respect. We never hear Brunel, or any of the first-class mechanics, spoken of as *mechanics*, because the term would not convey a sufficiently exalted idea of the position which they have attained by their trade. Our talk about the dignity of labor is all bosh, unless we have the combined knowledge of the whole craft at our command. As a mechanic myself, I have done perhaps one hundred dollars damage to my customers, within the past three years, for the want of one particular item of knowledge in my trade, which a dozen lines in your Magazine would have saved. This mistake was made after serving a regular apprenticeship at my trade, and after having over thirty years' practice besides. I have no doubt but there are many others who have done as much damage to their customers for the want of knowledge on some one particular head. In fact I have a case in my own mind, that came under my own observation, where a regular mechanic done his employer more than one hundred dollars damage in half a day's work, through the want of a mere item of knowledge which I could have imparted in one moment to him.

These things are no uncommon occurrences to mechanics. What a vast deal of knowledge every department of mechanism would have if they had a place to record all these mistakes, so that it came under the eye of every one of their trade, and at the same time warned them against a like error. It is the ignorant who bring our trade into contempt, and the only way of rising above it is by distributing knowledge that pertains to the trade; therefore every one of the craft have a direct interest in the circulation of your Magazine. I wish I could urge the absolute necessity to every mechanic in the land of making a move the right way in this matter. I would say, by all means throw away the foolish idea that some have of getting all the knowledge they can of others and not being willing to impart anything in return. Also I would say, use every honorable inducement to your neighboring members of the craft to get them to take THE NEW YORK COACH-MAKER'S MAGAZINE, the only work of the kind published in the United States; for by so doing you add an additional stock of knowledge to the craft of which you are a member, and of which we all stand in need. To the world at large I would say, what I *do absolutely know*, that you might as well throw your money into the bottom of the sea, for all the good it will do you, as to give it to a mechanic who does not want information about his trade.

Speaking of *bottom* reminds me that I am at the *bottom* of my page, and have said more perhaps than you will care about reading; therefore I will "dry up" by wishing your success. Your friend, —— ——.

[The above letter, intended for the Editor's eye only, contains so much practical good sense, sincerely penned, that we cannot resist the temptation of publishing it, merely withholding the author's name. He will please pardon us for the liberty we take.—ED.]

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

October 5. IMPROVEMENT IN WOOD-BENDING MACHINES.—Adam Luckhaupt, of Columbus, Ohio: I claim., *First*, The use of a wood-bending form constructed in two parts, with one or more wedges or keys interposed for the purpose of loosening from the stationary part of the form the movable part, with the bent timber attached, substantially as explained.

Second, In combination with a wood-bending strap, E, I claim the yielding blocks or abutments, K, L-shaped arms, I J, and chords, X, or their equivalents, for the objects set forth.

Third, I claim, in combination with a wood-bending strap, the wooden springs, H, and tension chords, Z, arranged and operating substantially as and for the objects stated.

Fourth, The side-clamps, O O′ P, applied and operating as set forth.

Fifth, In the described combination with permanent outer strap, E, and form, B, or their equivalents, I claim the detachable inner strap, S, stretcher, Q, shackle, V, tightening-nut, *m*, and key, R, substantially as and for the objects stated.

8. IMPROVED MACHINE FOR BENDING WOOD.—Enoch Robinson, of Raynham, Mass., assignor to the Old Colony Iron Co.: I claim the combination of the mould or former, P P′, the spring supporters or compressers, M M′, with the bed-plate and the sliding frame, K, the whole being constructed, arranged and made to operate together in manner and by means substantially as set forth.

RE-ISSUES.—IMPROVED MODE OF CASTING SEAMLESS SKEINS TO WAGONS.—Bridget Leonard, administratrix of the estate of Andrew Leonard, of Kenosha, Wis.: I claim, *First*, The manner, substantially as herein described, of producing the core, I, which gives the internal form of the axle-skein, and that part of the mould which gives the external form of the butt thereof.

Second, The manner, substantially as herein described, of producing that part of the mould which gives the external form of the wearing part of the thimble skein.

Third, The manner, substantially as herein described, of producing an unbroken impression, in sand, of the external shoulder, *a*, of the axle-skein.

Fourth, The manner, substantially as herein described, of uniting the base of the green sand core with the lower section of the sand mould, which gives the external form to the thimble skein.

Fifth, The manner, substantially as herein described, of holding in true position, or centering the green sand cores.

Sixth, The manner, substantially as herein described, of producing, as a whole, a sand mould which turns out, in the one operation of casting, a finished seamless and shouldered cast thimble skein.

The same lady has obtained a separate patent (re-issued) for a cast seamless thimble skein, substantially such as is specified above, which is not made seamless; by filing, turning, or otherwise being manipulated with after it leaves the mould.

15. IMPROVED BLACKSMITH'S PORTABLE FORGE.—M. De La Montanya, of San Francisco, Cal.: I claim, *First*, The application of the double-acting blowing cylinder to portable forges.

Second, The closed chamber, O, occupying the main body of the forge and employed to equalize the blast between the cylinder, D, and tuyere, P, as explained.

22. IMPROVEMENT IN CARRIAGE CURTAIN FASTENINGS.—W. Z. W. Chapman, of New York City, and J. W. Chapman, of Hyannis, Mass.: We claim the constructing of the catch or knob, substantially as specified. We also claim the noiseless grommet fastening, as and for the purposes specified.

IMPROVED TRACE-FASTENING.—S. W. Cox & J. H. Trowbridge, of New Haven, Conn.: We claim the trace-fastening, C C′ *e*, constructed, applied and operating as described, in combination with a whiffle-tree and the eye in the journal thereof, as and for the purposes set forth.

IMPROVEMENT IN SELF-ACTING CARRIAGE BRAKES.—William Ellmaker, of New Holland, Pa.: I claim the arrangement of the rod, G, with the eye, I, spiral spring, H, hook end or ends, G, in combination with the lever, E, fulcrum and pin, *e*, and rubber, F, when arranged and combined, substantially as set forth, for the purpose specified.

IMPROVEMENT IN HOLD-BACK FOR CARRIAGES AND OTHER VEHICLES.—John Davis (assignor to P. H. Floyd), of Elmira, N. Y.: I claim a hold-back [tug-iron] composed of two parts; one part attached to the thill [shaft], the other part attached to the harness, constructed and operating substantially in the manner and for the purpose specified.

20. IMPROVEMENT IN THE MODE OF ATTACHING HUBS TO AXLES.—C. H. Dennison, of Brattleboro, Vt.: I claim the rod, F, fitted in the arm, B, of the axle, C, and provided at one end with the eccentric or button, G, and at the opposite end with an arm or crank, *b*, as and for the purpose set forth.

IMPROVEMENT IN RUNNING-GEAR TO FOUR-WHEELED VEHICLES.—D. C. Brown, of New York City: *First*, I claim the toothed movable segment, D, and segment, E, in combination with the sliding spring button, or detent, H, when constructed and operating substantially as and for the purpose above set forth.

Second, The movable segment, D, when constructed and operating as described, to yield to the forward axle and wheels a limited motion independently of that imparted to the hind axle and wheels.

Third, The tracks, *b b*, and ways, *c c*, in combination with the frames or supplemental reaches, C C, as and for the purpose described.

IMPROVED MACHINE FOR HEADING CARRIAGE-SPRING HEADS.—John Evans, of New Haven, Conn.: I claim, *First*, The combination of the adjustable gauges, J J, with the counter die, H, and plate, I, when arranged and operating in the manner and for the purpose described.

Second, I claim the right and left hand punch, M, in combination with the right and left hand dies, L L, and gauge-pin, *n*, when arranged and operating in the manner and for the purpose described.

November 12. IMPROVED MODE OF TREATING DRYING OILS FOR THE MANUFACTURE OF VARNISH AND OTHER PURPOSES.—Frederick Walton, of Houghton Dale, Denton, England (Patented in England, Jan. 27, 1860): As an improved article of manufacture, I claim, *first*, a varnish as made by converting drying oil into semi-resinous material, in manner as described, and then dissolving in a solvent, as stated.

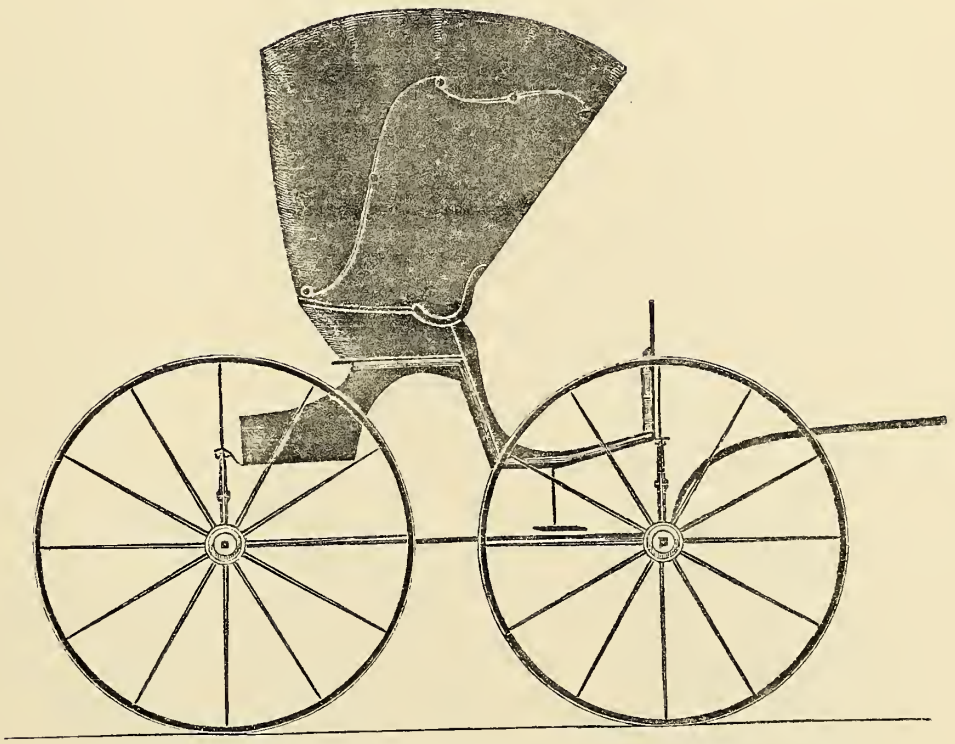
Second, I claim the producing a semi-resinous material from drying oil by the combined process of exposing it in thin films, on a suitable surface, to currents of warm air, and afterward separating it from the surface, either by a solvent or by pressure, as described.

Third, I claim, in the production of the semi-resinous material, as described, the preparing drying oil by causing it to pass repeatedly in very fine streams through warm air, as described.

Fourth, I claim the producing, by rollers and otherwise, sheets of semi-resinous material, either alone or mixed with other substances, the said sheets being either combined with a woven or other fabric, or otherwise, as described.

SPORTING PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 127.

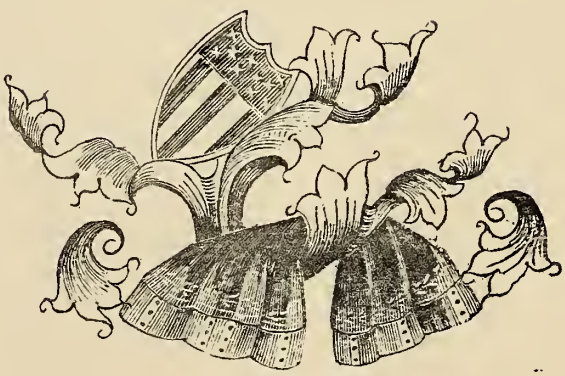


CUT-UNDER STANHOPE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.—Explained on page 127.

No. 1.

No. 2.



No. 3.

ORIGINAL ORNAMENTAL DESIGNS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 133.

The New York Coach-maker's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, MARCH, 1862. No. 8.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

(*Continued from page* 108.)

In Volume Three, page 178, of The New York Coach-maker's Magazine, the following question was asked, and, although an important one, has never been answered:—"Mr. Editor, it is the popular opinion that a short carriage-perch will run easier over an uneven road than it would with a larger [longer] one. Can you, or any of your correspondents, prove the truth of the popular theory from scientific deductions?" This question could have been answered correctly, with almost as few words as it has been asked, providing we all understood alike the motive power of wheel-carriages; but in order to understand, it would have been necessary to have laid down principles which would have required more time than we could spare to prove them.

The answer is: In long-perched wagons, we cannot keep the traction-line parallel to the short inclined planes over which it necessarily has to move, the same as we can the short one; therefore a part of the leverage is lost. This is illustrated in Fig. 5. A wagon with a long perch, *d*, *f*, which is represented by the traction-line to the hind wheel, and a short perch, represented by the traction-line, *d*, *e*, passing over uneven ground, which makes the obstacle, or fulcrum, *b*; the short perch keeps the line of traction parallel to the plane over which it is passing, while the long perch, *d*, *f*, keeps the traction-line and plane inclined together. Now notice how the long or short perch, or traction-lines, operate to lengthen or shorten the lever line, *a*, *b*. The short perch makes the lever-line to the hind wheels the longest, and as the lever-line, *a*, *b*, is to the weight-line, *b*, *c*, so is the power gained. Again: notice the position they will assume after the forward wheels have passed over the ascending plane and are going down the inclined plane. The hind wheels are coming up. The tendency which the forward wheels have to go down, operates to that extent to draw the hind wheels up, which makes the motive power to move the whole load the same as if it was on a horizontal plane.

Another reason for the gaining power in a short reach is, as we have said and illustrated before: obstacles always occur to the part of the wheel in the direction in which the wagon is drawn. The obstacles are sand, gravel, mud, &c., which are of various heights, from one to two or more inches. Sometimes they are crushed down, and at others they offer a resistance strong enough to raise the wheel over them. In either case, whatever leverage there is gained, is so much power gained towards overcoming the obstacle. We have seen, that by raising the line of traction it will increase the leverage power until it is raised to a point equal to 90° from the fulcrum. The line of traction would be from the under side of the forward axle to the under side of the hind axle, were it not for a mechanical invention which we have adopted of raising it on the forward part of the wagon or carriage. On a carriage, it is generally done by fastening the perch into the head-block, which is fastened to the upper side of the forward axle. In a wagon, it is done by fastening the perch or reach to the upper side of the forward axle. In either case we cannot raise the reach (which is the line of traction) only to a certain height, which we, for illustration, will call six inches. Now this six inches would be just two times as much towards the 90°, in a six-foot reach, as six inches would be at the end of a twelve-foot reach; therefore, half of the power gained by raising the trac-

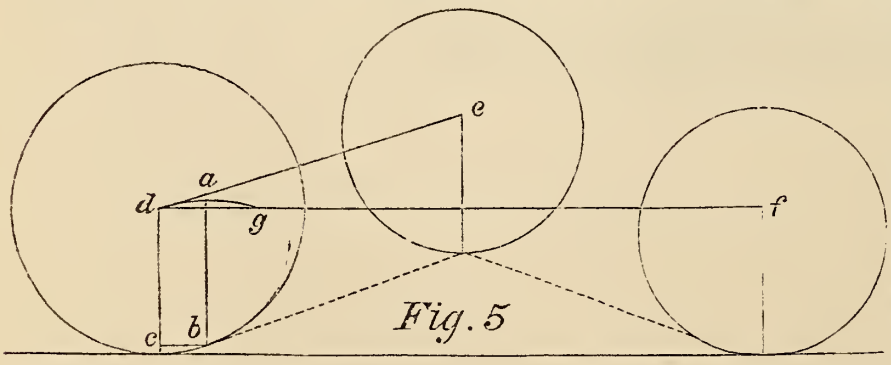


Fig. 5

tion-line would be lost in a twelve-foot reach. The plowman understands perfectly well this principle when he lengthens out his plow-chain to make the plow run into the ground deeper; he has simply lowered the line of traction by lengthening the chain, the same as we would by lengthening the perch. An intelligent and observing teamster once told me that he would rather draw the weight of two wagons *on* his wagon, than draw one wagon hitched behind his. The principle involved would be the same as with a long-perched wagon, as we have described it. Every principle of philosophic reasoning which we can turn our minds to, goes to show that this "popular opinion," which is embodied in the query, is a correct one, and cannot be answered upon any other theory than that which we have laid down.

A wheel passing over an obstacle requires the most power to move it when it first touches the obstacle, which is formed into a fulcrum, and the hub of the wheel, when on a horizontal plane, describes a curve like *d*, *g*, in Fig. 5, over the obstacle or fulcrum, *b*. Notice, as the gravitation-line, *d*, *c*, approaches the lever-line, *a*, *b*, that the weight-line, *b*, *c*, shortens, until the hub is perpendicularly over the lever-line, at which point the weight-line ceases, or changes on to the other side of the lever-line, which is always stationary while the wheel touches the obstacle; and from this point the weight-line operates as a motive power, just in proportion as the weight-line increases in reaching forward, which will be until the hub reaches the point *g*, on the curved line, at which point the wheel ceases to act on *that* fulcrum.

(*To be continued.*)

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page* 95.)

Rain fell in torrents during the night, and the next morning, when I prepared to depart, a dense fog hung in fleecy curtains, shutting out the view in every direction. "I sincerely hope," remarked the old gentleman, "that your ride may be pleasant, and that you may reach your destination without accident: but, truly, I entertain some serious fears; the sloughs and creeks are, beyond doubt, overflowing their banks, and trouble may consequently await you."

"I apprehend no danger in that respect," I replied, after expressing my thanks for the concern manifest for my personal safety. My words seemed to have quieted the old gentleman's anxiety, as he immediately dropped the subject. "We will be happy," he resumed, "to have your company as often as you can make it convenient to call;" and Emma blushingly reiterated the invitation.

After receiving the necessary direction concerning the road—which was different from the one I had traveled the day before—and assuring them that I would certainly visit them again, I bid them good-by, and set out toward the village. Pressing my horse on the gallop for a mile or two, I passed down a steep, craggy bluff, into a dense, gloomy forest below, towering over a low, muddy reach of swamp land. From former observation, I was aware it was the bottom-land of some water-course, though of what size I could form no idea. I had not proceeded far into this wilderness, when my ear was arrested by a low purling murmur in the distance before me. An involuntary tremor passed over me, for I knew it to be the noise of some swollen stream, and one which, from all indications, must neecssarily lie across my way. The roaring increased with every advancing step, until the feeble murmur was augmented into the ominous thunder of some vast inundation, rushing wildly and frantically on, submerging impediment after impediment, filling chasm after chasm, and uprooting and engulphing the sturdy oak in its mad and irresistible current.

Nothing daunted, however, by dangers that still lay in the distance, I urged my horse forward. I succeeded in crossing several bayous, which my horse swam admirably, and at length gained a terraqueous space at the verge of the main stream.

While I sat upon my horse, revolving in my mind some plan for further operation, my ear caught the sound of a female voice, and casting my eye down the stream, at the distance of a few rods, I beheld a lady, mounted on a spirited horse, advancing toward me. Coming near enough, so that her voice might be heard above the terrific din of the current, she remarked, with an air almost bordering on gayety, "Very thankful to meet you, sir, in this horrid place, which is enough to frighten the senses away from one."

"I find it very difficult to decide, madam," I replied, "whether your company brings me the greater pleasure or the more regret."

"Explain," resumed she—her voice slightly sharpened with irony.

"Of pleasure for your company in this dismal place, or regret that your life should be endangered by the water, which seems momentarily to threaten destruction.

A silvery laugh of defiance escaped her lips, as she waved her hand proudly over the turbid stream and remarked with emphasis, "Pedro has never failed to perform his duty previously, and I shall not lose confidence in him now." Then, stroking the horse's mane, she spoke in authoritative accents, "Pedro! Pedro!" and the horse seemed to nerve himself for some important transaction.

It now became apparent, by the diminishing of the strip of earth that we occupied, that the stream had not attained its repletion; therefore it became necessary that something should be done to meet the exigency of the case, and to escape the dangers which were rapidly accumulating around us.

"Madam, may I be permitted to inquire if you have any knowledge of the stream, and if it can be crossed at so high a stage?"

"I presume my knowledge should be perfect in that respect," she replied; "I have crossed it, back and forth, ever since I can recollect; but I must confess I never saw it so high as at the present time."

The lady now reining her horse up the stream, indicated that I should follow. She informed me that a few hundred yards above, what was known as "The Old Ford," was located, and depended on by the community as the only place where crossing could be safely performed at a high stage of water. We soon gained the said ford, and halted on the bank, and began to make preparation for crossing, such as adjusting saddles, tightening surcingles, loosening martingales, &c.

The stream was considerably wider here than at the

point where I had first seen it, and was somewhat retarded by an abrupt angle in its course, in consequence of which the current ran with less violence—promising a safer crossing than at other points. Venturing in as high up as practicable, and breasting our horses diagonally against the current, we commenced the perilous undertaking of crossing a deep and dangerous stream by swimming our horses.

I had taken the lead; but my horse, on losing his footing, faltered, and seemed inclined to save himself by turning to the nearer shore, when the horse which bore my fair friend darted out before mine, with his arched neck poised high above the water, and began to make good time toward the opposite shore. I again set my horse against the current, following in the other's course, swimming rapidly and well,—which rather restored the confidence which I lost in the onset. Our horses soon planted their feet firmly on the shore, and we were again on *terra firma*, presenting rather a humid appearance to what might have been expected on other occasions. Our clothes being thoroughly saturated with water, we were in no desirable condition to withstand the effect of the cold morning breeze which was blowing at that time, and which set us shivering from head to foot. My fair friend now proposed that we should proceed, at the same time inviting me to accompany her to her home, which I readily agreed to do. I was truly gratified to learn that there were no more bayous and sloughs to be crossed, having no inclination to take any more cold baths that morning.

Putting our horses on the gallop, we soon passed from the low bottom into a broad, elevated *plateau* of cultivated land, dotted with clusters of leafless fruit trees, farm-houses, and grain-yards filled with ricks of golden straw, from which the precious yellow grain had not been separated by the process of thrashing. Herds of cattle and sheep could be seen, eagerly searching for the few fresh blades that had recently sprouted, being sheltered by the high, dead grass, from the winds and frosts of autumn. In the far distance the limits of this plateau were observable, edged by a belt of timber, whose leaves had either fallen or turned brown by the frost that had previously touched them. Now and then a tree of more enduring nature than the rest, with leaves only changed to a brilliant red, stood out in bold relief against the horizon, throwing an eclipse over its neighbors of less gaudy appearance; reminding me of what I had often seen from the window of my old home, when the first rays of the early sun would touch the tree-tops on the mountain summit, clothing them in crimson robes, richly ornamented in gold-tinseled embroidery. The scene presented to our vision, when we had gained the level upland, resembled some cold landscape painting we had seen, where every object was delineated in dismal gray or sombre brown, and where the woodlands, almost invisible in the distant back-ground, were merely brought into view by a tinge of some dark color. One would think the artist's mind must have been wrapt in the veriest gloom to have imagined so cold a production. Such was the picture before us.

Having gained a smooth, level road, we now pressed forward rapidly. I soon found that the horse my fair campanion seemed to delight in calling Pedro was not to be outdone in fleetness; the farther we rode the more rapidly he pressed forward, until the race began to partake of a high degree of interest, and I was absolutely compelled to resort to the whip and spur that I might hold her company. Our course was now shaped toward a large orchard in the distance, above the tree-tops of which could be seen the upper portion of a dwelling, which, my companion informed me, was her home.

I was scarcely aware of the time we had made, until my companion reined her horse up and dismounted. Securing our horses, we walked down the gravel toward the house—a large frame, fronted by an elaborately finished portico, and ornamented with fine and costly cornice, and painted in the most improved modern style. There were large bay windows on either side of the portico, with the various fixtures of modern times; the whole presenting a picture of taste and refinement. Arriving at the entrance, my companion addressed me with, "Your name, sir, if you please."

"My name is Cruff, madam—Halford Cruff," I replied. She then opened the door, and I was ushered into a large, handsomely furnished sitting-room, where the family assembled to enjoy their leisure hours; but at this time there was none present but the old gentleman, the head of the family, whose features on ordinary occasions would portray the very element of good humor, busily perusing an old volume, and his better-half, sitting in a large easy-chair, engaged in some fine net-work. As we made our appearance, the volume and the net-work were dropped, and both looked at us in astonishment. Whether their gaze was particularly directed toward me as a stranger, or simply toward the appearance we presented in our wet and uncomfortable condition, I was unable to determine.

The old lady, breaking the silence, said, "Oh, Lizzie! how uneasy we have been for your safety, knowing that the streams were swollen from the rain last night, and fearing that you might venture to cross them, and lose your life."

"You should entertain no fears for me, especially when mounted on my good Pedro," she replied, with a saucy nod of the head, accompanied by a silvery laugh; then presenting me, she added, "Mr. Cruff, my mother and father"—then proceeded to relate the particulars of our morning adventure. After which they greeted me very warmly, expressing their thanks that nothing more serious had happened.

A bright fire was burning in the grate, the forked flames curling and shooting up the chimney, throwing abundance of heat into the room, making all comfortable within. I was invited to draw nearer to the grate, which I did, and very gladly, too, as the reader may imagine, after passing through the ordeal of a November bath.

After an hour had been passed in conversation, dinner was announced, and I accepted the invitation offered to accompany the family to the dining-room, where the table was spread with the most choice viands and rich dainties of the season. When dinner was over, and I was about ready to depart, the door opened, and Lewis Sterling, my Wheeling acquaintance, entered the room. Before either had time to speak, the old lady arose and said, "Mr. Cruff, my son Mr. Sterling." I then informed her that I had made his acquaintance in Wheeling, and related the incidents connected therewith. Lewis then shook hands with me and manifested much pleasure at our meeting, and earnestly pressed me to remain over night; which solicitation I, however, declined, fearing my friends in the village might be alarmed for my safety, on account of my protracted stay. After obtaining a promise from my

friend that he would visit me at the hotel in the village, and receiving the well-wishes of the family, I took my leave, feeling satisfied with my adventures and the acquaintances I had made.

(*To be continued.*)

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 107.)

Formerly the sociable or vis-à-vis was classed as belonging to the phaeton species, although sometimes built with two or three seats, capable of carrying six or nine passengers. Fig. 27 represents one of the latter kind.

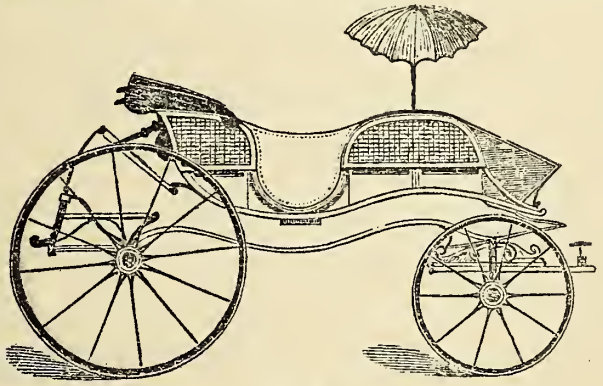


Fig. 27.

These sociables were intended expressly to meet the whims of pleasure-seekers in the public parks, and for occasional excursions with the family into the country. The body of our example is a simple combination of the different phaetons then in fashion, and, at this distance of time, seems odd enough. They frequently, when being built, were designed so as to allow of their being hung upon the carriage-parts of coaches, chariots, &c., after removing the bodies of such. This avoided the expenses that would be incurred in keeping two carriages, as the sociable body was only occasionally required. The body to Fig. 27 is what was once termed "a three tub-bottomed shaped chaise," and we are told by a cotemporary author that "the body could be built very light and simple, although they carry many passengers; but as they are intended for country use only, and in fine weather, they need not be more heavy than a common phaeton, and a great convenience for large families may be formed at a little expense." The carriage-part was similar to those used in crane-neck phaetons.

These sociable bodies were a union of three other phaeton bodies with drop-seat boxes to each, and a sword case to one, and all built on one large bottom, formed to the shape of the crane-neck, and cost about the same as three single tub-bottom chaise bodies. The side quarters were frequently caned, instead of being paneled, and in such cases the rails only were lined, and supplied with cushions and falls. The engraving presents us with the first example where an umbrella was employed, and is interesting in this respect. The space between the front and back seats was supplied with a leather flap, secured in its place to buttons. A folding draw step permitted the passenger to mount the vehicle. In the front spring we have the rudimental idea for our modern scroll spring.

The remaining examples we will give from two-wheeled vehicles, which at the commencement of the present century were very much used, as they cost less to build, and the government tax imposed was proportionably smaller. Carriages on two wheels have always conferred much hardship on both man and beast, and it is only a matter of expense that has contributed to their common use until now. But the following remarks from Felton are singular to us. Speaking of two-wheeled carriages, he says: "Not having the advantage of the fore-wheels, like phaetons, they are neither so safe in their bearings, *nor so easy to turn about with, and are therefore inconvenient where the turnings are narrow.*" We say singular, for every modern coach-maker is under the impression that the only redeeming good quality about two-wheeled vehicles is, that they are more easily turned around in narrow streets than the four-wheeled carriages.

At this period in our history, two-wheeled vehicles were all included in the curricle and chaise, the last sometimes called a gig or whiskey. The peculiarity of the curricle was, that it was generally used with two horses, while the chaise had only one. "Curricles," Felton tells us, "were ancient carriages, but are lately revived, with considerable improvements; and none are so much regarded for fashion as these are by those who are partial to drive their own horses. They are certainly a superior kind of two-wheeled carriage, and, from their novelty, and being generally used by persons of eminence, are, on that account, preferred as a more genteel kind of carriage than phaetons, though not possessing any advantage to be compared with them, except in lightness, wherein they excel every other, having so great a power to so small a draught. They are built much stronger and heavier than what is necessary for one-horse chaises, and the larger they are the better they look, if not to an extreme. They are often made to be used with one or two horses, and are convenient when made so for traveling; for if, by accident, one horse fails, the other may proceed with the carriage, as with a one-horse chaise, having the harness also suitably contrived. It is only for occasional purposes that it can be recommended, as a proper proportioned curricle for two horses is much too heavy to be frequently used with one."

These curricles (Latin, *curriculus*, a little cart or chariot) were known in 1787 as the curricle gig, or changeable curricle, the fixed, or proper curricle, and the new-pattern curricle. The first was used either as a curricle or gig, and was light enough for use with one horse. The proper curricle, of which Fig. 28 is a representation, were owned generally by "persons of high repute for fashion, and who are continually, of themselves, inventing some improvements, the variety of which would be too tedious to relate." The weight of these vehicles resting on the pole, a rest was attached, as in the engraving, to relieve the horses when not in motion. The draught was by a rope from the springs, the use of a rope being a novelty at that time. The cost is set down at about £103, or $500. The new-pattern curricle differed from the others in the fore end of the carriage-part only, "where there are both shafts and pole for a double security, so that if the pole should break, the shafts may support the carriage." The following remarks from Felton will be interesting to our readers:

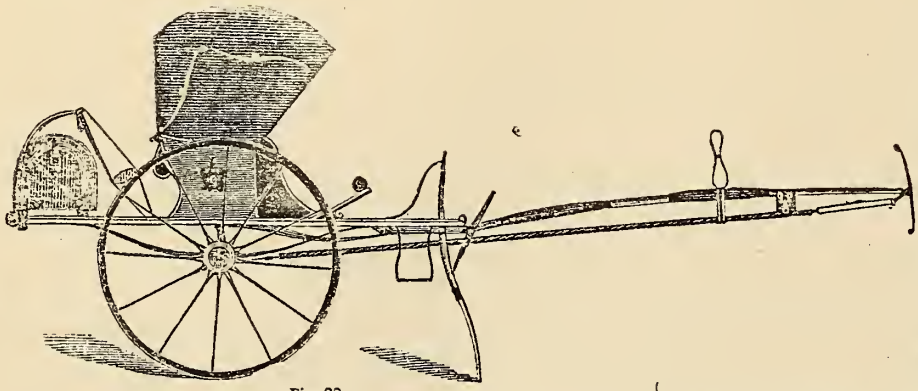


Fig. 28.

"From the novelty of curricles, the number of them is daily increasing, and, like every other thing which is a prevailing fashion, excites the speculation of ingenious men to alter and improve. Curricles, which are only drawn by two horses, cannot be materially injured in the draught by the additional weight of springs and other conveniences, which are intended either to give ease or make the carriage more secure to travel with. Those are the apparent properties of the patent curricles; but as they have been so lately constructed, a positive proof of their real or superior advantages over the other sort cannot as yet be ascertained with sufficient accuracy, so as to justify a full recommendation, further than that the mechanical ingenuity in the construction of them merits a trial from those whose circumstances can afford the increased difference of expense, which, with their being also more complicated, and thereby more subject to be out of order, are at present the only likely objections to hinder their general use; but both these objections, by experience and practice, may be removed; yet as they are not common, nor likely to be so, from the great difference of price, they may, on that account, be preferred by a few persons, who choose to appear distinguished."

Another *new-pattern* curricle was brought out in opposition, with "a pretended improvement," the principal object of which was to do away with the pole, the sliding, and the props, by substituting two pair of shafts (Fig. 29),

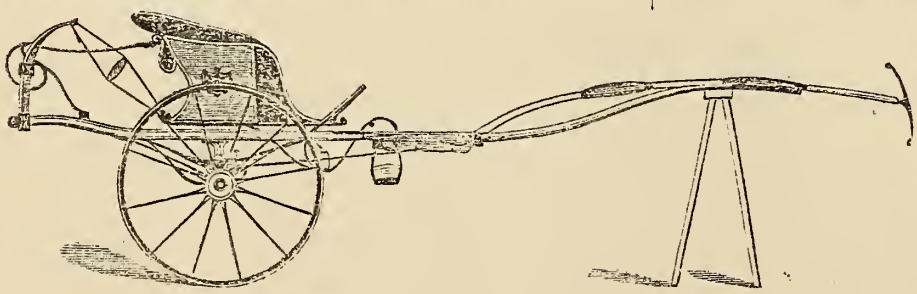


Fig. 29.

in which the two horses were hitched as in a chaise, the shafts being semi-circular, as in the diagram, and made to turn down "in the manner of a clasp-knife, to form a rest for the carriage, instead of the prop; and also if one of the horses should fall with him, without injury or incommoding the other horse further than stopping him, in consequence of the accident."

In a prophetic clause, Felton says of these curricles, that "from the complexity and expense of both patterns, it is much to be doubted if either ever become general; yet, as a few of them are in use, it is necessary to satisfy the public with a description, without injuring the proprietors or public by detracting from or recommending either in preference to the common sort. The proprietors of each invention make alterations upon every one they build," so that his description would not long continue correct.

The following extract from Adams's English Pleasure Carriages, published in 1837, will be interesting to our readers: "The curricle is the only two-wheeled carriage used with more than one horse abreast, and therefore approaches nearest in its mechanism to the antique classic car. In form, however, it is very different. The shape of the body is extremely unsightly, The hinder curve and the sword-case are positively ugly. The elbow and head are ungracefully formal, and the crooked front line and dashing iron are in the worst possible taste. The lines of the carriage framework and under-spring are graceful, but the mode of hanging the body is unsightly and inconvenient. The step preserves the general formal character of the whole vehicle. The mode of attaching the horses is precisely that of the classic car, only more elegant. A pole is fixed to the square frame, and is suspended from a bright steel bar, resting in a fork on each horse's back. In spite of the ungraceful form of the vehicle, the effect of the whole was very good. A seat for a servant could be attached to the hind frame, if required. This carriage fatigues the horses much less than one with four wheels [this we doubt], on account of its superior lightness, but it has been wholly disused of late years, probably on account of the risk attached to it if the horses become restive. The whole of the security depends upon the strength of the pole, which serves as a lever to sustain the weight of the vehicle and passengers, as well as to guide it. It is not essentially necessary that the vehicle should be ugly in its form, for it affords facilities for constructing the most elegant of all vehicles.

"A curricle of another form was built many years back, for the well-known Mr. Coates. The shape of the body was that of a classic sea-god's car, and it was constructed in copper. This vehicle was very beautiful in its outline, though disfigured by the absurdity of its ornamental work." The gig curricle will be given in the next number, with a further description of the two-wheeled vehicles.

(*To be continued.*)

Mr. Jefferson's Ex-Presidential Carriage.—At the close of Mr. Jefferson's Presidential term he had a carriage built after a design of his own. The work, except the plating, was all done by his own workmen. In this he drove four horses, that made a splendid appearance. These he called Washington, Wellington, Eagle, &c.; and he would never allow them to be controlled by reins, but two servants rode on horseback, each guiding a pair.

Home Circle.

For the New York Coach-maker's Magazine.

THE WITHERED LEAF.

BY LUA DELINN.

In return for the other, that beautiful leaf,
That bore on its pages no record of grief,
But which, fragrant and fair, as if autumn's dark wing
Had never yet shadowed the child of the spring;
Breathes only of days that were sunny and glad,
I can give thee for this but a token all sad,
That will speak to thee only of death and decay—
Of glories from life that have fallen away.
Once green as the places that memory keeps
Bright with smiles, and brighter with tears that she weeps,
But faded, and withered, and lifeless now. See!
Like the hopes that so brightly once blossomed for thee.
The bough cast it off when its clasp had grown chill—
This withered, dead leaf, yet so beautiful still.

For the New York Coach-maker's Magazine.

MISS FRANKLAND AND HER LOVER.

(*Concluded from page* 110.)

The gossips of Eaton began to wonder what kind of business it was that called Frank Boyer out of town so often, and the good people of Greenfield had learned the name of "the gentleman whose visits at the Seminary were so frequent."

"You *must* stay, Frank. I want you to see my favorite pupil."

"A bashful school girl! What do I care to see her?"

"I care to have you see her; she is so beautiful and graceful, and I love her so dearly." So, making music a pretext, Miss Frankland summoned Belle Anderson to the parlor. She entered with the perfect self-possession of a woman accustomed to society. Miss F. was gratified at the admiration Frank's face expressed, and still more at the deferential manner in which he addressed the "bashful school girl." Belle engaged him for some time in light, pleasant conversation, and then she turned to the piano, and requested her teacher to name what she would like best to hear. "Only let it be a simple ballad, if you please," she said, "for to-night I do not feel equal to the task of executing anything that requires artistic skill." Miss F. called for several of Frank's favorite songs, and when they were sung, he requested Belle to play something of her own choosing.

"Another time, perhaps, will do as well for that. You will excuse me now. Miss Frankland will testify that we school girls can but poorly afford to indulge in such pleasant pastimes. I regret it, but must say good evening."

Frank conducted her to the door, and as it closed upon her he said, "Beautiful! More than that! She's the most fascinating creature I ever saw. You must be well satisfied with your own charms when you are so anxious to display hers."

"No! My faith is not in my own charms, but in your"—

"In my honor," he quickly interrupted.

"No, not in your honor—I would not bind you by that—but in the sincerity and depth of your affection for me. You see I judge of you by myself."

At his next visit, it was by his request that Miss F. summoned her favorite pupil, and before long it was understood that when he was there "Miss Isabel" would spend at least a part of the evening in the parlor. He particularly admired her style of playing. No wonder that his visits became more frequent than ever, for now there was a two-fold attraction at the seminary.

"I hope I don't trespass on your time, Miss Isabel; Miss Frankland, I am informed, is not at home, and it is irksome waiting alone."

"No; I happen to be at leisure to-day—something unusual with me, even for Saturday—and shall be happy to entertain my teacher's friend. But your memory must be at fault. I think she told you of the excursion the teachers had planned for to-day."

"Sure enough, this was the day. How could I forget it?"

The piano was open, but the gentleman seemed to be in a mood for conversation rather than music. Belle's conversational powers had been carefully cultivated, and she appeared more and more fascinating as she glided gracefully from one subject to another. It was late in the day when, all at once, Frank recollected, fortunately, as he said, an engagement for the evening, which he would have been sorry to forget. For some reason Belle omitted to inform her teacher of the unexpected visit, and, strange to say, Frank made no allusion to it when he came again. His visits grew less frequent, but then, of course, "*business* must be attended to before *pleasure*." His letters were rather more brief than formerly, and bore marks of haste, but they came regularly. He would not forego the pleasure Margaret's letters gave him. They were a happy commingling of fact and fancy, sentiment and good common sense—so earnest as not to be flippant—so sprightly as not to be prosy. Once he had prized them as love-tokens; now it was their literary value he regarded. They were *model* letters.

Miss F. had long missed Belle's morning, evening, and noon-time visits to her room, but was at no loss to account for it, for during all the last term teachers and scholars had been unusually busy. Commencement exercises were over. Busy feet were running to and fro through the halls; there was rolling of trunks; there were voices of congratulation; laughing adieus, and tearful good-byes were spoken. Lights were glancing hither and thither, everywhere but in the deserted school-room—that was all dark; and there Miss Frankland went to enjoy for a few moments the quiet she could find no where else. Frank was to have been there on that day, but he hadn't come. It would be pleasant, she thought, if he could escort her home, but the journey was a short one, only a day's ride, and no doubt he was unavoidably detained.

The door quietly opened and closed again. It was Frank and Isabel, who little dreamed that the school-room had already an occupant; they, a listener.

"I delayed coming over until late that I might not meet—*your teacher;* but I've a carriage waiting, and we shall be in time for the next train."

"O! Frank, if I thought she loved you as I do, I would die before I would go with you."

"She loves me, but her pride is stronger than her love; and she would be the first to break the contract, if she thought I intended to fulfill it only from a sense of honor. It was made in good faith, but I met *you*, and was I to blame for loving you?"

"But I! O! Frank, it is such perfidy in *me*. She has

loved me so dearly. When I was sick, she nursed me like a sister; and at all times, and in various ways, she has proved herself my friend."

"I know, Belle; it is an unfortunate affair, but regrets are useless, and we must n't delay. Are you ready?"

"Wait here, while I go for my bonnet and mantle."

Frank was left alone with Margaret. She gave no sign of her presence, but when he and Isabel left the room together, she, too, hurried out by another door, and met them at the carriage. "Why, Isabel! are you going without telling your teacher good-by? Let me congratulate you both, and wish you all the happiness you deserve. Stay; let me make you a bridal present;" and she flung into Belle's lap a ring—the one that had sealed her own engagement with Frank scarcely a year before. "It will be a pleasant souvenir to you both."

Her voice was clear and quiet, betraying as little emotion as if she were speaking to a common acquaintannce. She waited for no reply.

Everybody in Eaton wondered to see her come back alone, and no one suspecting the truth, she was often questioned about Frank's movements. "Why, had he sold out?" "Was he going into a new business somewhere else?" Without affecting either ignorance or knowledge of his movements, she referred every one to him for satisfactory answers. It was not long, however, before some diligent inquirer came to a knowledge of the truth, and then she was an object of universal sympathy.

This was more than she could bear, and she determined to seek refuge among strangers. She obtained a situation in our "Temple Hill Seminary," and there she has remained these fifteen years. She is a fine teacher, but no one loves her; she is so unapproachable. She is always *just*, never harsh or stern; but never *kind*.

She saw Frank once more. It was six or seven years ago. It frequently happened, that in the absence of the Principal, she was summoned to confer with persons who wished their daughters to enter the school: You can imagine her surprise, when one day she entered the parlor, expecting to meet a stranger, and found herself confronting the man she had once loved. It must have been curiosity to see how he would demean himself that induced her to remain.

"Is your business with me, sir?" she asked.

"My business *is* with you, Margaret—"

"Strangers do not address me thus. There is *no one* to whom I accord that familiarity."

"Miss Frankland, then, I am here to tell you how bitterly I've repented of the wrong I did you, and to atone, so far as may be, for that wrong (the other party to it is beyond the reach of human censure). You loved me once; I do not believe your heart has ever been given to another, for a nature like yours never knows a second love. Go with me, and let me make your future happy, as your past has been sad."

"Go with *you!* No! not *to Heaven*! You remind me that I was weak enough to love you once, but that was long ago, when I believed in love and friendship, and many other lies. I've outlived those days of weakness and folly. For years I've *hated* you. Now you are only an object of *contempt*."

She never met him again.

NOTICE.—This Magazine, since November, to the end of the 4th Volume, is published bi-monthly only.

Illustrations of the Drafts.

PICNIC ROCKAWAY.

Illustrated on Plate XXVII.

FOR the purposes intended, we think this to be one of the very best designs we have been favored with since the publication of this Magazine was begun. It is both light and airy, and, as its name indicates, a carriage made after it would constitute one of the most convenient and pleasurable vehicles for a picnic party that we have yet seen. A glance at our drawing might lead to the thought that the construction of a carriage after it would be a difficult job, but a little reflection will disabuse the mind of any such idea. In the first place a bottom-side taken from plank one-and-a-half inches thick will be required. To these, standards are secured for supporting the roof and framed seat-bottoms added, for receiving the turned spindles on which the belt-rail rests. The door is paneled and ornamented with split-in-half spindles nailed on, and an ornamental center-piece added thereto. The quarters are open-work, partially relieved by a valance of patent flap-leather. The seat-bottoms should project 1½ inches over the bottom-side at the ends—this will relieve the vehicle of the monotony attending a flush job.

SPORTING PHAETON.

Illustrated on Plate XXVIII.

SEVERAL designs for sporting vehicles have been presented to our readers in these pages, with the object in view of meeting the requirements of the times, in which a growing desire for this class of carriages is observable, in this country. The sporting pheaton we give in this number is of very simple construction, and yet furnishing a neat job, suited either to the wants of a family, generally, or for the select use of *pater familias* "infected" with hunting propensities, and disposed to take along his friends.

The body of this phaeton may be made with a solid-side; the brackets for a toe-board, and standards for the front-seat, being framed-in, to which last mock-blinds are attached. The seats in our design are intended to be paneled.

CUT-UNDER STANHOPE.

Illustrated on Plate XXIX.

VARIOUS devices have been resorted to in order to facilitate short turning where high front-wheels are used. This is often promoted, as in our example, by cut-under bodies. In this case our artist has remodeled the old English stanhope which was in vogue here in 1830, and as designed, it is rendered a convenient vehicle for a physician, or man of business in the city. The construction of the body is very simple; a plank-sided rocker, a long

front-pillar and a panel round-cornered seat comprising its chief parts. The seat should project *over* the rocker and flush with the front-pillar, as in the picnic rockaway previously described.

Sparks from the Anvil.

PATENT SADDLE-CLIP, FOR CARRIAGES.

Brewster & Co. *vs.* Miner & Stevens.

(*Examinations continued from page* 115.)

[We had prepared a verbatim report of the testimony produced in this examination for our pages, but finding it likely to be long, and some portions of little importance to our readers, we have concluded to present the remainder in a condensed form, except in such cases as where to do so would deprive it of interest.]

Dec. 4. *James P. Mason, for the defendants, examined by Mr. Albert Cardozo.*—Am 37 years old, reside at 213 Varick street, and a blacksmith by occupation; have been employed by Miner & Stevens for the last eleven years, off and on, up to May last; worked on light work, and forged the clips used to secure the back-axle and hind-springs to buggies. [The witness having been shown three models, marked as Exhibits A, C, and D, which had been prepared to assist witnesses in rendering their descriptions intelligible to the Commissioner, was requested to describe the clip used by Miner & Stevens. Complainants' counsel objected to this mode of examination as obviously leading; but it was, with a proper explanation, allowed:

Model A represented a single-clip, with a long head to take two rivets through the spring, and a separate coupling or yoke; this last being all the difference from the Patent Saddle-Clip.

Model C, a clip with a round top, and separate coupling in the common mode.

Model D, two separate simple clips through solid eyes on the axle.]

Witness testified that he had made all these varieties in Miner & Stevens' shop, and that he had certain knowledge that they had been made seven or eight years like model D; like model A for three years, he "guessed; would not exactly state the time;" like model C "about a year or so; but the clip-bar is the same as we always made them. I changed the saddle, or top part, and put it on a road wagon to make it a little lighter," at 368 Broadway. I never forged a single-clip with the eyes solid to the hind-axle, and never saw in any part of Miner & Stevens' place of business any light wagon with a single-clip connecting the hind-axle and spring, having the eyes solid to the axle, differing from models A and C.

Cross-examination by Mr. George Gifford.—*Q.* You say you worked for defendants, at 368 Broadway, in May last. What have you done since that time?

A. Blacksmithing.

Q. For whom? and has that been your only business?

A. I worked for Mr. Colyer, in Newark.

Q. And has that been your only business since?

A. Well, I keep a dancing-school in the winter season, [Laughter, in which the witness joined, at the same time. "with an eye to business," inviting complainants' counsel to send along his children to be taught. Counsel "did n't know but he would take a few lessons" himself.]

Q. How long have you kept a dancing-school in the winter season?

A. About eleven years, right straight ahead.

Q. Did you keep a dancing-school any year while you worked for defendants?

A. Yes, sir.

Q. Did you work for defendants during the day, at the same time you kept a dancing-school?

A. I worked there in the day time, and kept school in the evening, except that I lost a day occasionally—in 1847. Did not work there that winter. [Newark is 9 miles from New-York City.]

Q. What business did you first learn—coach-making or dancing?

A. Both together, mostly; when I was under instruction I went to a dancing-school.

Q. Which of the two do you think you are the best qualified to perform?

A. Well, I think I am capable of both.

The further cross-questioning of the witness went to show that he made clips like model D, with solid eyes, to prevent the clips from shifting or getting loose in use,—some half-dozen or a dozen,—6 years before; and that, when Miner & Stevens altered their bed patterns, afterwards,—they were nearly straight on the bottom previously—they gave them more rise in the center, tapering the axle from the center, leaving the center of the bed top and bottom as wide as the spring; then they used a separate coupling to a single-clip, because they thought it would answer the same purpose as the two, and look neater; this might have been three, three-and-a-half, or four years ago,—somewhere along there; that they employed as many as 11 blacksmiths; that he forged as many as 25 or 50 clips like A, and that he had seen others do the same in that shop; that when Messrs. Miner & Stevens received Messrs. Brewster & Co.'s circular, that Mr. Miner came down into the blacksmith's shop, to him, first, stating that Brewster & Co. had got a patent on those clips, and he (Mason) laughed at him. "I told him they could n't get *no* patent on *no* such thing as that, I should think." He said he was notified not to make any more, or something to that effect. If I am not mistaken, I was just about to commence one, and I said, I suppose I must not make any more, and as he turned away, and laughed, I said, "I'll put the clips on all the wagons you give me to iron. This was all that passed."

Witness said he still continued to make the clips, in different styles, either round or saddle-headed, as fancy dictated, and that he made for a 150-pound wagon, to go South, one with a round head, "on his own hook." That about four years ago last Spring he kept a shop at 211 Wooster street, for about three months, where his pocket felt the loss of $800; and that within five years, for about three months, he had worked for Mr. Saunders, at Hastings, forging Miner & Stevens' and Saunders' patent shaft-couplings; and that from there he went directly back to work for the defendants in this case, up to May last.

Dec. 9. *James Osborn sworn and examined on the part of defendants.*—Is 34 years old; resides in New York, and is a blacksmith; worked for Miner & Stevens from 1849 or 1850 up to February, 1861, with the exception of about three months in 1857, and about six weeks previous

to that, when he was out West. Witness was principally employed in forging the iron work, and putting it together, on light wagons, to which he used the single-clip. "Sometimes we would put them on extending over the two outside holes of the spring; sometimes by letting the top of the clip extend about an inch beyond the ends of the saddle, and sometimes we would put them on so as to form a perfectly round ring, like a half dollar." This last did not extend *over* the outside holes in the spring. [The importance of the remaining evidence demands a verbatim report.]

Q. By what means was the hind axle, spring, bed-piece, and clip fastened together when you worked in defendant's employ—by the single-clip which you have described?

A. Fastened by what we term a clip-bar.

Q. Tell us how, by means of the clip-bar, the fastening was accomplished?

A. Right over the spring the clip runs, and the bar running across the axle, with two holes in the bar, the clip running right through this bar, with a nut under the bottom of the axle, the nuts to screw them to the bottom of the axle.

Q. Was there any other method used by the defendants, when they used a single-clip, to combine the spring, hind axle, and bed-piece of light wagons? *A.* No, sir.

Q. How was the clip-bar of which you speak forged?

A. Forged with two holes in it—the two holes just far enough apart to admit the clip through, and make a good fit.

Q. Was the clip-bar forged as a separate piece, or was it solid to the axle? *A.* Always separate.

Q. While you were in defendants' employ, did you ever forge, or did you ever see in their establishment, any single-clip to connect the hind axle and spring of light wagons, with eyes forged solid on the axles? [Complainant's counsel objected to the question, as leading.]

Q. How long ago did you forge or see used in Miner & Stevens' establishment single-clips like those you have described?

A. Four years ago; not certain, however.

Q. Where were Miner & Stevens doing business when you first knew of their using a single-clip and the method of combining the hind spring and back axle which you have described?

A. At 368 Broadway.

Q. Please look at the model, Exhibit A, and state what it represents?

A. Represents a clip fastening spring, bed-piece and axle together.

Q. State how it compares in method with either of the modes you have described?

A. It is the very thing itself.

Q. Then please tell us exactly what model A shows, including the method of combination?

A. I don't understand the question.

Q. Tell us what means are represented on Model A as the method used to connect the spring, bed-piece, and axle?

A. The means is by letting the clip run over the holes, with a rivet or bolt from the bottom of the spring, with a square head on it—this head let in the bed-piece to keep the spring from moving, also to keep the clip in its place; then the clip runs down underneath, outside of the hole between the bed-piece and axle, with a bar across the axle, and screwed together.

Q. When you speak of letting the clip run over the holes, with a rivet or bolt from the bottom of the spring, with a square head, please tell us what part of the clip you mean runs over the holes, and what holes you mean?

A. The top of the clip runs over the two outside holes in the spring.

Q. You stated, in answer to the question how Model A compares with either of the models you have described, that it is the very thing: please tell us whether single-clips and the method of combining the back-spring and hind axle of light wagons, shown on that model, were or were not used by the defendants when you were in their employ? [Objected to, as leading.]

A. They were used.

Q. Do you know, and, if so, state, whether single-clips and the method of combining the back-spring and hind axle of light wagons, represented by Model A, were or were not used by other manufacturers than M. & S., and if you say they were, state how long ago? [Objected to as above.]

A. They were used, as a common thing, along the streets as long ago as three years; won't be certain about the time.

Q. Please look at exhibit Model C, and state what that represents, and whether you have ever seen *that* clip and method of combining the back-spring and hind axle of light wagons used, and if so, where? [Question objected to.]

A. It represents a clip that I have put on myself, at Miner & Stevens' shop.

Q. About how long ago did you use the clip and method at Miner & Stevens' place?

A. About three and four years, I think.

Q. Please describe for us the whole clip and mode of combination which Model C represents? [Objected to.]

A. It represents the same as Model A, with the exception of the top, which does not extend over the two holes in the spring; it merely takes one rivet in the center of the clip. The two rivets or bolts are used the same as in Model A, except running through the clip.

Q. What is meant by the term double-clip?

A. What I would term two clips instead of one.

Q. While you were in Miner & Stevens' employ, did they use any other than a single-clip to combine the hind spring and axle of light wagons, and if so, what?

A. We used two clips.

Q. Tell us how the clips were made, and the method of combining by means thereof the hind-spring and axle of light wagons which were employed by Miner & Stevens when they used two clips?

A. The clip was simply a piece of iron about half an inch in width, long enough to go over the spring, to connect with the bar on the axle.

Q. What do you mean by the bar on the axle?

A. When we used the double-clip, we generally welded two eyes on the axle to form the clip-bar, that is, for each clip—four eyes in all.

Q. Would that be termed forging the eyes solid to the axle? [Objected to.] *A.* Yes, sir.

Q. Did you use two clips and the nuts you have described while in Miner & Stevens' employ?

A. Yes, sir.

Q. How long ago did you so use them?

A. Six or seven years ago, I think.

Q. Please look at exhibit Model A, and state what that represents, and whether you have ever seen clips like them, and the method combining the back-spring and axle of light wagons, than as that model, and if so, where? [Mr. Murray objects to the model being shown.]

A. Represents two clips, as I have put them on myself, in Miner & Stevens' factory.

Q. Does it differ from the two clips and method of combination which you have described, and if so, state in what particulars?

A. No difference at all; 'tis the same thing.

Q. How long ago have you used, in Miner & Stevens' employ, two clips made like this shown in Model D, and the method of combining by means thereof the hind axle and spring of light wagons?

A. Six or seven years ago.

Q. Do you know of a clip termed the clip-king-bolt?

A. Yes, sir.

Q. How long have you known that clip?

A. About seven or eight years.

Q. Describe the clip-king-bolt; tell us how it is made in all its parts? [See an illustration of the clip-king-bolt in Volume I., at page 71, of this Magazine.]

A. It is a clip made with a sort of crotch which comes over the bed-piece and axle, connects with a bar on the axle, the top part extending up through the head-block and spring, with a screw-nut on the top.

Q. Which is the clip-king-bolt—a single or double clip?

A. Single.

Q. You say that the clip-king-bolt comes over the bed part and the axle, and connects with the bar on the axle: tell us what you mean by bar on the axle, and how that bar was made?

A. The bar was made solid to the axle, and sometimes separate.

Q. How long ago was the clip-king-bolt made with the bar forged solid to the axle?

A. I have forged them myself about five years ago.

Q. Do you mean forged them solid with the axle—the bar?. *A.* Yes, sir.

Q. When? [Objected to.]

Q. Did you so forge them, and were they not actually used on wagons?

A. Yes, sir, at 368 Broadway, in Miner & Stevens' carriage factory, and they were used as quite common on light carriages.

Q. Will you look at exhibit, Model G, and tell us what that is? [Objection is made to the model being shown, as leading.]

A. That is the clip-king-bolt as we used to make them, with a solid bar on the axle.

Q. By *we*, in your last answer, who do you mean?

A. Mean the hands in Miner & Stevens' factory.

Q. How long ago have you made or seen, in Miner & Stevens' factory, the clip-king-bolt with a bar solid to the axle, as shown on Model G?

A. Five or six years ago.

[The direct examination of this very intelligent witness being closed, complainant's counsel asks that the examination of the witness may be adjourned, as he himself does not feel well enough to cross-examine witness to-day, and his associate counsel, Mr. Gifford, has been detained at his residence, probably by reason of unforeseen circumstances, and that he is willing to pay the witness's fees at any time when he may proceed with his cross-examination. Mr. Cardozo, for defendants, does not consent to the adjournment for the purpose of having the witness cross-examined. Counsel for complainants gives notice that they would insist on obtaining this witness for cross-examination, or else the defendants must produce the witness, or they shall move to strike his testimony out on the hearing of this cause.]

Dec. 23. *William Edgecomb called for defence.*—Is 49 years old; lives in the Third Avenue, and is a carriage-maker (wood-workman), and has been in the continuous employ of Miner & Stevens for 13 years and 2 months, leaving them about the middle of last August; his special business having been the "making of axle-beds, perches, head-blocks and spring-bars," comprised in the running-gear to carriages. The witness said that he fitted the beds to the axles, but that he never fitted such with a single-clip, where the eyes were forged solid to the axle; that "they used a plain capped plate on the top, sometimes oval, sometimes round," with a separate coupling fastened under the axle-tree; that when two clips were used, then they employed solid eyes to the axles in *lieu* of the coupling. These two separate clips with solid eyes were used five or six years ago, and the single-clip "about two years and a half, or a little upwards—pretty close on to three years; I couldn't say about the time."

Cross-examination.—Defendants had three men working on carriage-parts at the time witness worked there, the third one only working occasionally; couldn't say how many worked on the clips; that had nothing to do with the wood-work of a carriage; that "perhaps some weeks the defendants turned out seven or eight carriages, perhaps some weeks not as many;" that two men did the wood-work for seven or eight carriages per week, exclusive of the shafts and poles, and that the third man's name was Nelson Demarest, who worked for them five or six years off and on—the second, Ira Tompkins. Previous to using two clips, defendants used three bolts to secure springs to axles on light wagons; but the double-clips with solid eyes avoided weakening the axles by holes through them, allowing a lighter axle equally strong. When witness left defendants' employ they were using the single-clip.

Peter J. Doty examined for defence.—Am 39 years old; reside in Newark, N. J., and am a carriage-blacksmith; went as an apprentice to defendants in 1839, and have followed the business ever since; I worked for them from 1853 up to 1860, being away one or two years between 1859 and 1853. This witness, whose cross-examination will appear in our next issue, confirmed that sworn to by others for the defence in relation to the clips. Being shown Model F, representing a saddle-clip, with a loose coupling and ears on the clip to receive a jack or goose-neck, he stated that he "made about a dozen of them, at all events," in 1845, at Rahway, for spring-perches, "which were made to a great extent both in New Jersey, Connecticut, and some in the State of New York;" and that he saw them in wagons in defendants' establishment either in 1847 or 1848, could not tell exactly which; does not consider that rivets through the spring and top of the clip "are any advantage at all; they are merely a matter of taste."

Dec. 26. *Nelson Demarest called by Mr. Stoughton.*—Am 30 years old; live at 32 Hester Street, and am a

maker of carriage-part wood-works; have worked for Miner & Stevens about six years—five years on carriage-parts; commenced with them in 1856, and left last November; never saw, in defendants' establishment, any carriage, nor parts thereof, having a single-clip, with solid eyes on the axle for such clip, while there.

Mr. Gifford's cross-examination of the witness proved that he was absent from defendants' shop six months in 1857; that two men worked constantly on light work, and one on heavy; that witness had been out of work since November last.

William Brockington called and examined by Mr. Stoughton.—Am 21 years old, and a carriage-finisher; have worked for Miner & Stevens eleven years, at helping, finishing, and hanging-up carriages; during that time was away three weeks altogether; eight or nine years ago was away two weeks on their business, and one week, a year ago last March, to get married; during the last six years have had the handling of all their carriage-parts, except the wood-work.

Q. Has any carriage, or wagon, or any portion thereof, having a single-clip with eyes solid upon the hind axle, been made by the defendants during the time you were in their employ? *A.* No, sir.

Q. Look at Models A, C, and D, and state whether the defendants have manufactured any wagons with clips arranged and constructed in connection with the hind axle otherwise than as seen in those several models? [Question objected to as leading.] *A.* No, sir.

Q. State how long since the defendants first commenced the manufacture of wagons with clips upon the hind axle-trees, as shown in each of those models, respectively?

A. Put on Model A for the last five years; like Model C for the same length of time, only at intervals; some workmen would make them one way, and some another; made Model D about the same length of time.

Q. When you say some would put them on one way and some another, what variation are we to understand was made in the top part of the clip, in A?

A. Sometimes long, sometimes round, and sometimes oval.

Mr. Gifford's cross-examination showed that this witness never served any apprenticeship at carriage-making; that he first worked for Wood & Tomlinson, about thirteen years ago, for nine months; next for Mr. Tweedle, in Barclay Street, driving a soda-water wagon, for one year; next for Miner & Stevens, to the present time.

Q. Are you aware that you have sworn that you have examined every iron, nail, and screw that has been put in a light wagon made by Miner & Stevens during the last six or seven years?

A. No, sir; I don't know that.

Q. Are you aware that in this examination you have examined every piece of iron, however small, and of whatever kind, whether nails, screws, or other forms, put in light carriages made by Miner & Stevens during the last seven years? [Laughter from the other side.]

A. No, sir.

A great many questions followed, of very little interest to our readers, from which it appeared that the witness worked for Wood & Tomlinson at "blowing and striking," and taking off and putting on the irons to old work in repairing; that he helped the blacksmith at Miner & Stevens' for three years on new work, and after that went to finishing; works for them now, and swears positively that Osborn & Mason both made the clips like the models five years ago; that his only preparatory qualification for finishing was helping the blacksmith; that a man by the name of Peck had the wagon with the double-clip D, which clip was first made; remembers it because Peck was a blacksmith himself, who always left *something* to treat the boys; that he came from California, and married a rich woman; remembers that A was next, because when *that* clip was first used it cut the carving, which was subsequently altered in the pattern, and made the bed for the spring and axle in the centre of like width both on the top and bottom; that defendants used double-clip D about three years before they used single-clip A; that they used to turn out six or seven carriages per week; that it was impossible for the single-clips, with the eyes solid, to have been made in defendants' shop without his knowing it; that defendants employed at that time 90 or 100 men, and that he never saw any clip like Brewster's patent at the fair of the American Institute the year before the Crystal Palace burned down.

Dec. 27. *John B. Chatterson called by Mr. Stoughton for defendants.*—Said he was 45 years of age, lives at 36 McDougal Street, and is a carriage-finisher; had been engaged at that business for about 25 years—nine years with Charles Beardsley, eight with J. H. Godwin, and going on eight years with D. J. Dusenbury, all in New York city; worked in Liverpool previously. Is acquainted with the first spring-perch that came from Wood & Tomlinson's factory in Bridgeport, to New York, about 1844 or 1845; it came to C. Beardsley's to be altered; "right after, the perches became all the rage in this city." The single-clips to these perches were the same as in Model F, with the exception of the ends of the clip; these were short, and had no rivets in them, only one through the center of the spring, the head of which just entered the bed of the axle-tree, and had a square head.

Q. Did you, at any time after the first introduction of these clips, such as you have described, make any change in the top part of the clip, and if so, state what change, and where?

A. Yes, sir. I had the ends pieced out and made longer at each end, making holes in them to correspond with those in the spring—say about four inches apart; some had rivets, and some bolts through them from the bottom of the iron axle, and some from the under part of the spring, and were riveted fast on the top plate of the clip, with a square head sunk into the wooden part of the axle. Beardsley altered six or seven spring-perch clips, somewhere near 1844 or 1845, for persons who ordered it done. After this alteration, the clip and its connections with the spring and back-axle were the same as shown in Model F; all the clips altered were upon the hind axle-tree.

Mr. Gifford's cross-examination of the witness proved that he, in company with Mr. Stevens, went to Bridgeport—Stevens paying his fare—to see a man by the name of Samuel Eldridge, who worked with him at Beardsley's at altering the spring-perch clips referred to, "because *they* commenced making such a time about this clip, which he had made years before." Witness does not claim to be the inventor of this clip, "only the alterer;" never stated that he was the inventor; never spoke to any but Eldridge about this clip, who, "to the best of his recollection," remembered such alteration—except Jim Judd, who worked on them at Beardsley's, and now works with

Brewster & Co.; think that Dr. Mott (Quaker Mott) had one of these alterations; made all these alterations within about six months, either in 1844 or 1845.

Q. Have you not stated that Mr. Stevens would make you a fine present in case you won this suit? [Objected to.] *A.* No, sir; nothing like that.

Q. Does Mr. Dusenbury make light wagons with the single-clip to secure the spring and bed-piece of the hind axle?

A. Yes, sir; he never done many of them, though.

Q. Did you help do it? *A.* Yes, sir.

Q. Rather in favor then, are you not, of the result of this suit, in case it should be decided against the defendants? *A.* No, sir.

Q. Why not?

A. Because I think it will come the other way.

Q. Did you answer the question next before the last to the best of your ability? *A.* Yes, sir.

Q. Do you know that Mr. Dusenbury assists in defending this suit? *A.* No, sir; I don't know.

Re-direct examination.—*Q.* What was the name of the man who came to you from Brewster & Co.'s, the complainants? A. James Judd.

Q. How long had you known him before that time?

A. About 23 years.

Q. Have you stated all Judd said to you? and if not, state what he did say?

A. I haven't stated all he said to me; he asked me if I had taken my affidavit on the clip; I told him I had; he then said that Mr. Miner came up to his house and said that if he would state that he had seen this clip, he would give him (Judd) $500; we then had a drink and parted.

Q. Did he say nothing to you in that conversation as to what Brewster & Co. would do if you testified for them? [Objected to.]

A. He said if I hadn't taken my oath I might go with him to Messrs. Brewster & Co.'s, and they would do something handsome for me; I told him I was not working for any thing of the kind, as regards money—that I was only speaking of what I had done. He said that he knew that I had done it, and that he didn't wish to work himself into it.

(*To be continued.*)

Paint Room.

For the New York Coach-maker's Magazine.

LESSONS IN PRACTICAL COACH-PAINTING.

BY F. W. BACON.

(*Continued from page* 98.)

LESSON VII.—Repainting, &c.

As a natural consequence, all members of the craft in each and every department find it necessary to turn some attention to repairing; and so essential is this, that, in some places, it is almost considered as a trade in itself. In consideration of this, we intend to give some hints relative to repainting. Cleaning up and repainting an old carriage is always a kind of dread-job for the painter.

In the first place, a job should never be painted over until it has done cracking or shrinking. Then, if it is not necessary to remove the old paint, it should have one coat of lead-color mixed with nearly all oil, and then rough-coated until the cracks are well filled, after which the process is required as in painting a new carriage.

A better way, however, is to remove the old paint entirely. By this means you will be enabled to depend wholly on the paint you put on. It is a very easy matter to take off paint by going over the work with a strong solution of sal ammoniac, and then exposing it to heat. Here is my mode of doing it: I apply the solution with a wide, flat brush, and then pass along a torch close to the surface, and immediately follow with an old chisel or something of the kind. A ball of candle-wick, steeped over night in camphene, makes a very good torch for the purpose. In using the chisel it should not be very sharp, as it would be liable to damage the work. This will be found an excellent way to remove paint from wheels where it is badly cracked. All you have to do is to place the wheel horizontally on a pivot, and pass the torch under it, turning the wheel as it becomes necessary.

TO ENLARGE OR CONDENSE A DESIGN WITHOUT ALTERING ITS PROPORTIONS.

Take the design to be changed and lay it off in squares, as in Fig 1. The lines may be numbered for convenience. Then enlarge the squares as much as you wish the design enlarged. (See Fig. 2.) If the design to be copied is in a book or other place where it should not be defaced, it can be lined in squares by means of a thread.

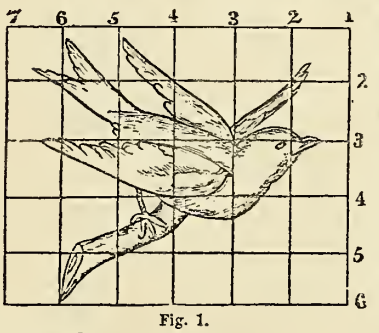


Fig. 1.

Suppose you wish to copy the bird seen in the engraving; you have it lined in squares as in Fig. 1. All you have to do is, to observe where the outlines intersect the lined squares, and you can easily trace it proportionally to your lined paper, observing where the lines intersect proportionally in Figs. 1 and 2.

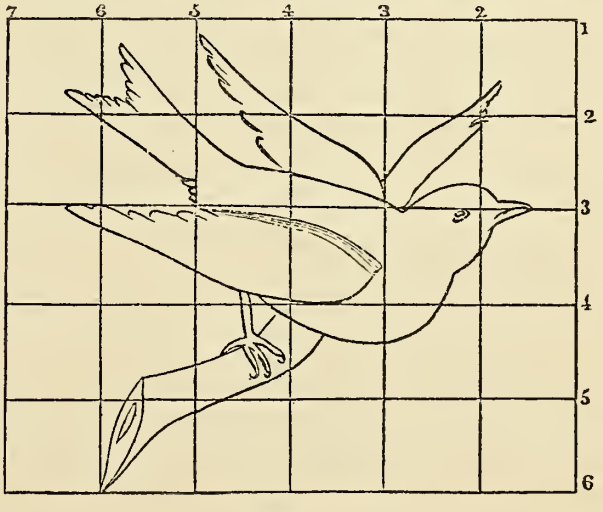


Fig. 2.

ORIGINAL ORNAMENTAL DESIGNS.

Illustrated on Plate XXX.

No. 1.—The wreath to be laid with gold-leaf; the inside leaves to be gone over with distilled verdigris and afterwards shaded with asphaltum; the eagle's head painted to imitate nature.

No. 2.—The nude limbs of the Bacchante should be done with crimnitz white, Naples yellow, and scarlet lake; the shading being permanent blue and ivory black; hair, Naples yellow and raw umber; cap, blue; drapery, purple; pitcher, crimnitz white and raw umber; flowers, pink, touched up with white.

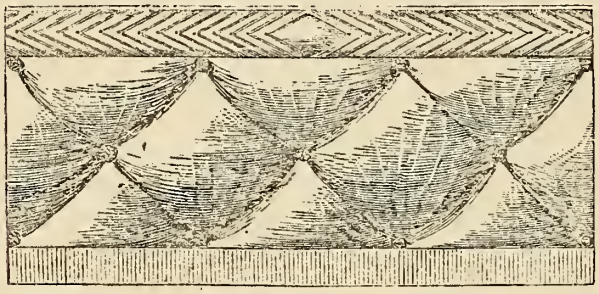
No. 3.—The scroll should be gilded and then shaded with raw sienna and asphaltum, and the leaves touched up with red. Paint the mantle with carmine, with vermillion blended in. The stripe along the upper edge of the fringe should be white. The groundwork for the fringe may be deep chrome yellow, shaded with ivy-black; the vine, blue; the shield, red, white, and blue; the stars gilt, the outside edges of the shield to be either white or blue. Designed by Mr. T. R. Sherry.

Trimming Room.

For the New York Coach-maker's Magazine.

DIAMOND BACK-LINING.

In making up this back, after you have pasted three or four thicknesses of buckram together, then fitted and laid out the same, take a flimsy piece of cheap mus-



lin to form the swell, or roll, and, having stuffed and tufted them, then tuft your cloth down, commencing at the same place (through the center), and draw what fullness you have in a plait at the top and bottom of the diamond-shaped form. The top of the back may be (as in the example) of the herring-bone pattern, or otherwise, to the taste of the trimmer.

A back finished in this style looks better than any one would suppose from the drawing on paper,—particularly from my hand. It looks neat and keeps its place well, made either of leather or cloth. J. WATTERS.

Dayton, O., Dec. 8, 1861.

PATCH-WORK.

VALUABLE INVENTION.—M. Glatard, a Frenchman, has invented a harness which can be detached from the horse by merely pulling a rein specially devoted to that purpose. A break at the same time stops the carriage. This permits the driver, in case his horse becomes unmanageable, to let him go entirely freed from the harness, so that he will not be likely to injure himself.

SOME trimmers in the country are in the practice of doing much of *their stitching* with white paint and pencil instead of the needle. This looks well when new, but evidently cannot look so very long. This practice is calculated to injure the craft in the minds of fair dealers.

PANELED BUGGY-SEATS now in vogue possess one good quality—they do away with much of the trimming formerly required, and consequently lessen the expense.

The New York Coach-Maker's Magazine.

MARCH 1, 1862.

E. M. STRATTON, Editor.

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COVERS, *handsomely gilt, and ready for binding the numbers therein (which any binder will do for* 25 *cts.), can be had at this office for* 44 *cents. When mailed (the postage on which we prepay),* 55 *cents. Any volumes left with us will be bound for* 75 *cents each in our uniform style.*

POSTAGE.—*The postage on this work is* 3 *cents per quarter, paid in advance. Our friends will report to us all Postmasters charging more, and we will have the matter set right.*

☞ *All letters directed to this office on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*

☞ Our columns, this month, are so much crowded with original matter (the English patents from the London Mechanics' Magazine, now long in type, being an exception), we are compelled to make our editorial matter brief, and everything else "solid."

THE NECESSITY OF MECHANICAL ART.

KNOWLEDGE of mechanical art—made obligatory among some nations, as shown in a previous article—is not only necessary as a resource for obtaining the food and clothing our natures demand, under adverse circumstances; but, there is a broader sense in which it must be considered,—its beneficial effects in promoting the comforts of mankind, and preserving a higher standard of intellectual refinement among nations.

If we go back to the first ages of the world, experience tells us that that curse was a terrible one which doomed human beings to cultivating the earth without fitting instruments wherewith to perform the imposed necessity—to earn their bread, previous to the dawn of mechanical arts, *sans* hoe, *sans* sickle, or any other of the ten thousand implements with which the tiller of the ground is favored in our day. Without these the earth could have scarcely been tilled at all, and down to the present hour man must have remained comparatively

helpless, heathenish, and miserable. If examples are necessary to demonstrate the fact, we have it in the changes now going on in those countries emerging from barbarism into a state of civilization. With all the fancied independence awarded to an agricultural life, still, some dependence from the farmer to the mechanic is due. Without the mechanic his fields would run to weeds, or continue a dense forest. A dark catalogue of misery and woe would sum up the total of his existence.

Mechanic arts have preserved the glory and renown of nations for the wonder and astonishment of after generations. What would the fame of ancient Egypt have been without her monuments, her pyramids, her obelisks? What that of Nineveh and Babylon, did not the productions of mechanics, as seen in their exhumed relics, proclaim to the modern world their grandeur? Has the renown—that renown which is the pride of all nations—of other individuals come down to us with as much force as has that of the mechanic? Who has not heard of Archimedes and his inventions, with which he was able to resist the hostile intentions of a strong army for a long period. Some may interpose and tell us that many original conceptions are produced by non-mechanics. This we concede; but then, without mechanical hands to carry them out, they would have fallen still-born from the brain of their progenitors, and been lost to the world in the sea of oblivion.

Thus we see the necessity for mechanical art, needed to increase the comforts and happiness of mankind, and promote civilization among the nations of the earth. We have in another place stated that coach-making indicated civilization,—that where *that* was carried on the most extensively, there civilization abounded. We might, perhaps, qualify the assertion and say that, in a certain sense, coach-making and civilization are synonymous terms, both manifestly marching onward side by side in the world's progress.

EDITORIAL CHIPS AND SHAVINGS.

DISCOVERY OF PURPLE.—It is said that the beautiful color known as purple—a mixed tinge of scarlet and blue—was first discovered at Tyre, in this wise: A dog having eaten a shell-fish called *purpura*, Herculus Tyrius, his owner, observed that his lips were tinged in the process. This simple act led to the introduction of a color which has been used by princes and great men as a mark of distinction for ages, and one of the richest known to the painter.

PROTECTION AGAINST RUST IN TOOLS.—For this purpose, a solution of white wax in benzine is recommended. Moderately heated, benzine dissolves half its weight of wax. If this solution be carefully applied to tools with a brush, the evaporation leaves a very adhesive and permanent coating of wax, which is said to effectually preserve iron and steel against rust and the action of acid vapors.

WAGON-BODIES TURNED INTO BOATS.—An experiment was recently made by the N. Y. Fifteenth Regiment over the eastern branch of the Potomac, near the Washington Navy Yard, of putting iron wagons to practical use. Four wagon-bodies of corrugated iron were fastened together, into which fifty-two soldiers were placed and ferried across the river. Having recently condemned iron wagons (see Volume Three, page 178), we are now glad to chronicle *some* advantages from their invention. What has become of the Harlem Company's stock?

HEAR WHAT A FRIEND SAYS:—"I am not able—nor would I be willing if I was—to spend any time in extending the circulation of the Magazine, if I did not think it really *a public benefit;* but in consideration that such is the case, I shall in no wise begrudge any time that I may spend for the advancement of its interests. I will not allow any proper occasion to go by without urging it on my friends or acquaintances." How many more think, and will act accordingly?

A NEW RENDITION.—*Vanity Fair* says, "*After* Shay's rebellion, out of deference to the Carriage-makers, should be rendered *Post*-Chaise Rebellion."

ANNOUNCEMENT.—A portrait of H. S. Williams, Esq., author of Clarence Clifford, will appear in our next number.

The Coach-Maker's Letter-Box.

LETTERS FROM OHIO.

DAYTON, O., Dec. 8, 1861.

FRIEND STRATTON:—I have delayed writing you until now, thinking to secure a better opportunity to do ourselves justice in the premises [see the article, Diamond Back-lining, on page 133]; yet I find that after all, if we do not sit down in the midst of the usual amount of the perplexities of a carriage manufactory, *real and imaginary*, that you would not hear from us until after the South *Corn-Feds* are acknowledged independent. With us that would signify, *never!*

Midst this *heavy pressure* of business we found time to go to the Northern part of the State; camped out in the woods and had a grand hunt; stayed out ten days and brought in two deer and five wild turkeys as our share; although in justice to myself I must let you know that *we* killed three deer, and, if you were near us, think you would have realized the fact, for, *editorially* speaking, we would have been glad to have given you a notice. This is the cause of my being behind time in everything, in and out of the shop; but we shall not stop to inquire whether it has been time thrown away or not; believe I should be *silly* enough to do the same thing over again.

J. WATTERS.

CINCINNATI, O., Dec. 24th, 1861.

FRIEND STRATTON:—Business in the carriage-line is very dull here at this time. Some of our carriage and

wagon makers have made a large number of army-wagons and ambulances, but the profits have been nothing; the two-wheel ambulances have proved a perfect failure. The quartermaster is now having them altered to four wheels, at an expense of about $75 each. Yours, truly,

G. R. G.

LETTER FROM NEW JERSEY.

PATERSON, N. J., Dec. 9, 1861.

MR. EDITOR.—*Dear Sir:* I notice in Volume Four, on page 69, an instrument for striking ovals, which you say Mr. G. "has kindly allowed us to publish." Is he the inventor of that instrument? The reason I ask is, because I have the plan in a "Dictionary of Mechanical Science," published in London, in 1835, by Alexander Jamieson, LL. D., in which it is called "Elliptic Compasses." If Mr. G. is not the inventor, I do not think he justly deserves the credit which he seems to claim. It is well to give anything that will benefit the craft, but credit should be given to whom it is due.

Respectfully yours, DANIEL P. PRESTON.

LITERARY NOTICES.

The Atlantic Monthly, for February, has been received, and a very interesting number it is. We are glad to find that this sterling work is in a prosperous condition. With the January number 16 pages were added, commencing the Ninth Volume—144 pages monthly, for only $3. This monthly is a credit to American literature, and, under the direction of its present editors, is the most popular periodical of the day. The articles are all so good that we find it extremely difficult to particularize. Our friends are advised to look at it.

The Rural New Yorker, published weekly, at Rochester, N. Y., by an esteemed friend—D. D. T. Moore—is a capital paper for any mechanic who cultivates a garden, or even a simple flower-bed. The household receipts alone are worth the $2 asked for it yearly. It gives a complete history of the present war, and is the cheapest and best "Rebellion Record" now publishing. The present is a good time to subscribe for it.

ENGLISH IMPROVEMENTS IN CARRIAGES.

DEC. 17, 1860. IMPROVEMENTS IN THE MANUFACTURE OF WHEEL TIRES.—Alexander Southwood Stocker, of Wolverhampton. This invention relates to the manufacture of tires to be applied to wooden wheels running on common or other roads, and consists in the employment for that purpose of two differently constituted metals, in order to produce the bars out of which the tires are intended to be made; also in drilling or punching holes through tires, when made in accordance with his invention—such holes being intended to receive the bolts, nails, rivets, or screws, for the purpose of affixing the tires to the wheels. He says: I apply to the manufacture of tires the use of ordinary wrought iron, in combination with an article commercially known as steel iron, or puddled steel, placed together in any desirable proportions, and disposed in any convenient manner. I take a bar or bars of suitable length, width, and thickness, of the harder material—intended for the wearing side of the tires,—the softer one being the foundation upon which the harder one rests, in order to avoid breakage. These two differently constituted metals, having been placed together in a pile convenient for the purpose intended, are then heated in an ordinary heating furnace, and when it has obtained a suitable heat, fit to be welded, it is taken from thence and passed and repassed through rolls, such as are used at and driven by the ordinary rolling-mills for rolling merchant bars, bringing out a bar united firmly in one solid mass, and of the suitable shape and dimensions for the tires intended to be produced, after which they are bent, welded, holed and shrunk, riveted, screwed, or otherwise fastened on the wheels, in the ordinary manner as now practiced by wheel-wrights generally.

The component parts which I have found to be the most desirable as to wear and tear, and also to avoid the tension and stretching qualities to which the ordinary or common tires now in use are so much liable, has been 60 per cent. of the hard and 40 per cent. of the softer material. Tires when so made are very strong and rigid, possessing at the same time a surprising amount of durability over the common tires now in use, especially under heavy weights, hard wear and usage. Another great advantage which tires made according with my invention possess is that of embracing and holding the frames of the wheels tight together to the very last. The tires may be made out of the hard material in its entirety, although it is not desirable to do so.

Having now described the invention secured to me by the hereinbefore-in-part-recited letters patent, I would observe that I do not confine myself to the precise details herein set forth, for they may be varied in any convenient manner that may be found more desirable without departing from my invention. *Patent completed.*

MARCH 7, 1861.—IMPROVEMENT IN THE CONSTRUCTION OF CARRIAGE-WHEELS.—J. Edwards. This consists in connecting the ends of the several parts or sections forming the felloe-rim of a carriage-wheel by metal couplings inserted in a seat cast in the ends of each of the said sections; and, further, in inserting the outer end of the wheel spokes in the said couplings, instead of the holes drilled through the felloe as heretofore. The said felloe or rim is composed of as many sections as there are spokes in the wheel, so that each section, being of a shorter length than in wheels as formerly constructed, can be cut more in direction with the grain of the wood. *Patent abandoned.*

REGISTERED PATENTS UNDER PROVISIONAL PROTECTION.

Arthur East Holmes, Derby, for carriage-springs. Jan. 22, 1861.

Robert Offord, Jr., of Wells Street, Oxford Street, London, for the adaptation of India rubber, and the compounds thereof, to various parts of public and private carriages or vehicles. Patent dated Feb. 18, 1861. Registered May 3, 1861.

John Watkins, of Birmingham, for carriage-axles and carriage-boxes. April 26, 1861.

Peter Wright, of Dudley, for the manufacture of wheels and apparatus or machinery to be employed therein. May 2, 1861.

Geo. Shillibeer, of the City Road, and Geo. Giles, of Fenchurch-building, London, for the construction of omnibuses and other vehicles. Patent dated Nov. 3, 1860. Registered May 4, 1861.

William Pease Smith, of Weymouth, for the construction of radial traversing carriages, May 4, 1861.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

November 19. Improved Scroll Saw.—P. L. Baar, of Indianapolis, Ind.: I claim an endless saw, S in combination with the two pulleys, D1 D2, each propelled by the same belt, arranged as described.

Improved Means of Attaching Traces to Carriages.—W. L Hubbell, of Brooklyn, N. Y.: I claim the cross-bolt, *c*, applied to the eye, *a*, of the whiffle-tree, in the manner and for the purpose specified.

Improved Device for Shrinking Tires.—Christian Weitman (assignor to himself, H. W. Glynn and A. Hageman), of Independence, Iowa: I claim the plate, A, provided with a series of semi-circular concentric holes, *a*, and pins, *b*, in combination with the chain, B, and lever, C, all arranged substantially as and for the purpose set forth.

Improvement in Army Cooking-Wagons.—G. F. Nilson, of Providence, R. I.: I claim, *First*, Combining the above mentioned oven with an army-wagon or other vehicle, substantially as described.

Second, The combination of the said oven or baker with either the boiler or broiling apparatus of both, and this combination with the wagon substantially as described, for the purpose of making a portable army cooking-stove.

Improvement in Oilers.—L. H. Olmsted, of Binghamton, N. Y.: I claim an oiler, made with a semi-spherical bottom, without seam, a flexible cover, and a conducting wire attached to the extremity of the tube, all as shown and described.

26. Improvements in Carriage Springs.—A. R. Miller, of Attica, N. Y.: I claim constructing elliptic springs with double bearings, *b b*, and leaving the centre thereof detached from the axle and spring-bar, substantially in the manner and for the purposes shown and described.

Improvement in Elastic Carriage Wheels.—S. D. Woodbury, of Lynn, Mass.: I claim rendering a carriage wheel elastic, by making the felloe in two concentric parts, F and *f*, and interposing a belt, or layer, of India rubber or other elastic material, R, substantially as described, and for the objects specified.

Improvement in Carriage-Pole Supporter.—S. E. Bolles, of Mattapoiset, Mass., assignor to himself and Thomas Ellis, of Rochester, Mass.: I claim an improved carriage-pole supporter, having its several parts constructed and arranged in relation to each other, and so as to operate together, substantially as shown and described.

December 3. Improvement in Double-trees.—C. C. Bradley, of Brodhead, Wis.: I claim the construction of a double-tree which dispenses entirely with single-trees, and the application of the central pulley as a substitute therefor. Also the method described of attaching the trace-hooks to a movable slide with the slot therein, or substantially the same.

Improvement in the mode of Attaching Carriage Shafts.—T. D. Davis, of Syracuse, N. Y.: I claim a wrought or malleable shaft heel and arm, constructed so as to secure and tighten the shafts and cross-bar, substantially as shown and described.

Improvement in Shaft Coupling.—B. B. Hill, of Chickopee, Mass.: I claim the employment of a tapering or conical bearing pin or bolt, B, for the socket of the shaft iron, having an adjustable set screw, A, and set nut, E, in the manner as, and for the purpose, described.

Improvement in Combined Carriage Lantern and Axle Lubricator.—John Scheeper, of New York city: *First*, I claim feeding a carriage lantern and axle bearing with oil from the same reservoir, substantially as described, for the purpose set forth.

Second, The reservoir, E, screw cap, J, horizontal perforated tube, F, screw nuts, *b c*, tube, *c*, collar, C, axle bearing, B, when combined, arranged, and operating in the manner described.

Improvement in Carriage Brakes.—I. R. Carpenter (assignor to himself and S. K. Williams), of Lancaster, O.: I claim hanging or arranging the shaft that winds the chain and applies the brake, substantially as described, so that when the fore end of the pole or perch is depressed in descending a hill, the roller, S, will swing against the wheel or hub, and be turned, so as to wind the chain and apply the brake, and when the fore end of the pole is raised, the wheel will swing from the hub and release the brake.

I also claim the cam, U, on the shaft, L, for the purpose specified, substantially as described.

10. Improved Stop for Coach Doors.—Henry Killam, of New Haven, Conn.: I claim the curved bar, F, slide, A, and guide rod, H, arranged as shown, and applied respectively to the door, A, and seat rail, E, as and for the purpose set forth.

Improvement in Bit Braces.—Charles Morrill, of New York city: I claim the bit brace head, A, and cam, B, in combination with the spring, D, as described, for the purpose specified.

Improvement in Hold-backs.—U. B. Winchell, of Oak Hill, New York: I claim the combination of the cam, projection, or button, on the cock-eye or loop, and the recess, or recess and slot, in the hook and plate, when operating together in the manner and for the purpose, substantially as described and operating.

Improvement in Wheels.—Peter Wright, of Dudley, England, for improvement in wheels (patented in England, May 22, 1861): I claim, *First*, The formation of the bosses or naves of wheels in the manner described. *Second*, The mode of combining or connecting together, as described, the several parts of wheels, with the exception of that portion of the single disk wheel alluded to. *Third*, The manufacture of wheels with cast-iron bosses, or naves, formed and secured as described.

24. Improved Machine for Cutting Bolts.—M. D. Budd, of Roscoe, Ill.: I claim forming the jaw, B, of two parts, *c d*, connected by a joint, *e*, said parts, *c d*, being provided respectively with a hook, *k*, and notches, *l l'*, and all arranged substantially as shown, whereby the jaws, A B, and their cutters, C C, may be distended or spread apart at a greater distance than they otherwise could be, and admit bolts or rivets which vary materially in size, being cut with one and the same implement.

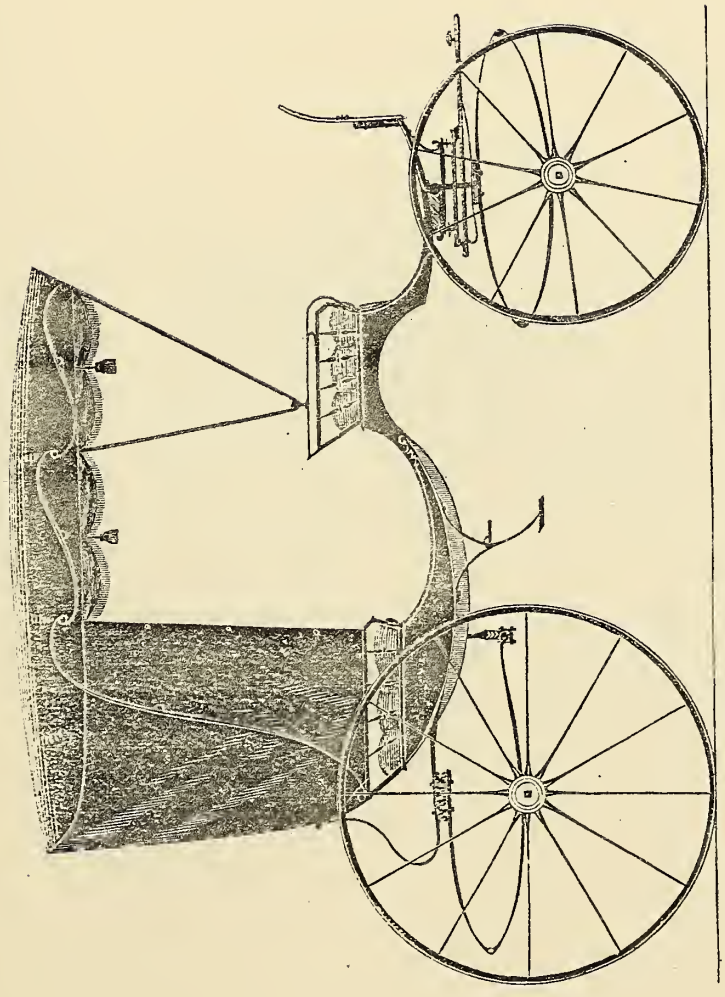
Improvement in the mode of Securing Carriage-wheel Hubs on Axles.—John Scheeper, of New York city: I claim the hub, A, axle journal, B, flanged cap, D, pin, *b*, collar, *a*, band, *c*, and screw, *d*, when combined, arranged, and operating in the manner substantially as described.

Improvement in Whiffle-tree Attachment.—Conrad Marquardt (assignor to M. L. Marquardt), of Rhinebeck, N. Y.: I claim attaching or connecting the whiffle-trees, D D, to the double-tree, A, by means of the links, E E, racks, B B, and the spring, F F, arranged substantially as set forth.

Improvement in the mode of Attaching Breeching to the Shafts of Carriages.—G. F. Holland, of Leominster, Mass.: I claim the particular combination and arrangement described, the same consisting of a spring clutch attached to the harness, and a fixed stud or standard permanently affixed to the shaft, the two operating together, substantially as described.

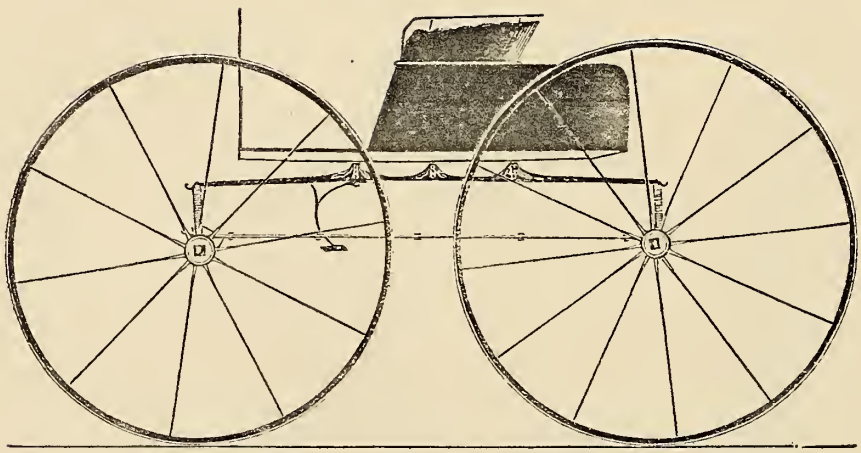
January 14. Improvement in Omnibus Springs.—J. H. Dennis, of Louisville, Ky.: I claim connecting the bed, G, to the longitudinal bars or springs, B B, by means of a transverse bar, F, springs, E E', and hangers, D, substantially as and for the purposes explained.

Improvement in Carriage Wheels.—Charles Leavitt, of Cleveland, Ohio: I claim so dividing the two parts of the hub, F and G, into alternate depressions and projections, having their longitudinal faces bounded by radial lines from the center of the axle, and filling the alternate space, *a* and *e*, with spokes, in such a manner that each spoke shall have in part a metallic bearing upon each side, filling the entire space with spokes, as described, in combination with the concave face of F, and the convex face of G; the nut, H, and cap, K, operating as and for the purpose set forth.



EXTENSION TOP PHAETON.—½ IN. SCALE.

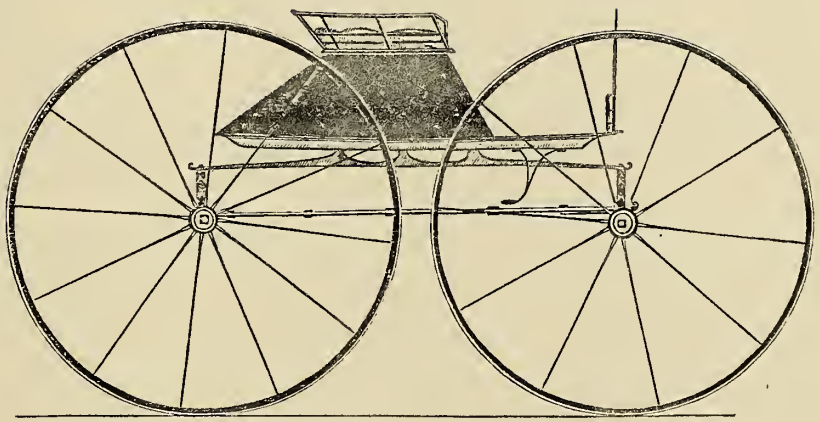
Designed expressly for the New York Coach-maker's Magazine—*Explained on page 144.*



MANHATTAN YACHT BUGGY.—½ IN SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 144.



NEW YORK UNION BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 145.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, MAY, 1862. No. 9.

The Coach-Maker's Portrait Gallery.

For the New York Coach-maker's Magazine.

BIOGRAPHY OF H. S. WILLIAMS, ESQ.

(WITH PORTRAIT.)

Nearly all the portraits we have given in these volumes have been those of the older members of the craft, somewhat distinguished as business men. The present is of a different character—a journeyman distinguished as a talented young man in the walks of literature and mechanics. As such, it is with peculiar pleasure we present it to our readers.

Hiram Smith Williams, the subject of the present sketch, was born at West Bloomfield, in the State of New Jersey, July 27th, 1833, and is the third of four children, the eldest a daughter and three sons. There being thirteen years' difference between his and the younger brother's age, Hiram, to all intents and purposes, was the youngest child. In his youth he had the advantages of but a common-school education, and this only during the winter months, the summer season being employed in obtaining a physical development amid the duties of a farm life. At this period we are told that, like most other boys, he preferred a good game of ball, I-spy, or a slide down hill, to all the books and lessons with which he was surrounded. As he grew older, however, his thirst for study increased; and the two or three last winters of his school days, ending about 1845, were marked with rapid progress in gaining knowledge. It was during this time that he manifested a taste for and a desire to use his pen, which resulted in the production of numerous pieces, in poetry and prose. Especially did he delight in poetry, and it was his habit to take a favorite piece found in his school-book, go out to the woods alone, and there read it aloud to the passing winds. The eccentricities of his teacher, and the sports of his playmates, furnished him with ample themes for the exercise of his pen. The chief business of his pen, at a very early age, was to rhyme; and rhyme it must. This, he tells us, was done as far back as he can remember, and "no doubt," he says, "I thought them excellent then, but now they are odd enough to read, and rough and scraggling!"

On the 10th of June, 1850, at the age of seventeen, Mr. Williams left his rural home, situated at the foot of the Orange Mountains, to enter upon the business of his life. From a point in these mountains known as the Eagle Rock, a splendid panoramic view may be obtained of the villages of East and West Bloomfield, Orange, and other smaller ones, the cities of Newark, New York, and Brooklyn, Bergen Heights, Staten Island, the New York Bay and the Narrows, Newark Bay, and the Passaic and Hackensack rivers, are all to be comprehended in one glance of the eye. His initiatory apprenticeship was with Mr. Daniel De Camp, who carried on, at that time, a "one-horse shop," in the city of Newark, N. J. Here his faculty for rhyming was called into exercise by writing valentines and sentimental love-ditties for the albums of his female acquaintances. About this time he made his first appearance in print, in a New York journal.

Here we cannot omit to note a good trait in Mr. Williams' character. In the Newark shop he found a dissipated shop-mate, who, as is very common, "with all his faults," was very kind and obliging to the apprentice, who in turn took an interest in his welfare, and induced him to take the pledge of total abstinence, and through entreaty and advice he became a steady man ever afterwards. The boss is said to have been *so much of a business man* that it kept him out of the shop most of the time, so that our apprentice was left to "learn himself" much of the time. This did not suit him, and so he remonstrated with his employer, who promised to take another boy, and, "as he had some new wagons to build, it would give him a good chance for improvement." But no new apprentice came, and the promised wagons were built by other parties; so after two years' patience he left "one day," for Bridgeport, Ct.

During his residence in Newark he had not neglected the improvement of his mind. He joined the Newark Library Association, from whence he obtained books, relating to history and biography, and these he devoured with great avidity. He states that our Revolutionary struggle and the lives of its actors greatly interested him, from an early age. There is one trait in our friend's character we cannot too strongly impress upon the minds of our youthful readers. Instead of wasting his leisure time in folly, after the labors of the day were over, he generally retired to his room to study his books or to use his pen until bed-time. In the summer season he would rise soon after daylight, and read until called to breakfast. While many of his acquaintances took pleasure in walking the streets or running "with the machines," he amused himself

with his books and paper, at the same time storing his mind with the treasures of useful knowledge. The attendance of an occasional lecture increased his desire and gave him an appetite for mental food and culture.

Mr. Williams was very much encouraged when he found his first essay accepted, and no doubt it has had its beneficial influence on his mind. How often has the withholding of a word of encouragement, or a smile of approval, or an act of assistance—insignificant though they be, and costing nothing—proved like a dark cloud hanging over the otherwise bright hopes and prospects of the young, expanding and aspiring mind! Mr. Williams has often been heard to remark that he thought he might have been somebody, if his first efforts while at home had been encouraged. His effusions—as has too often been the case—in poetry and prose, were ridiculed and laughed at as nonsense or absurdities. But having a good deal of resolution and perseverance, he has progressed till those who ridiculed the loudest have been forced to bestow on his efforts their *unqualified approbation.*

In Bridgeport, Mr. Williams placed himself under instructions with Messrs. Wood & Tomlinson, where he finished his trade. There, he humorously says, he "acquired a reputation of loving to fish, sail, and sit on some secluded spot along the shore, reading poetry and writing rhymes, better than working at his bench."

In 1854, Mr. Williams went to Ohio, where he lived three years, in as many different places. There he turned his attention to literature and was offered the editorial chair of a village paper called the *American Citizen.* During this time he contributed to several periodicals, as *Moore's* Western Ladies' Book, Ladies' Pearl, Christian Annual, Greenfield Republican, &c., under the *nom de plume* of "Hebron Bell."

In 1857, Mr. Williams left Ohio for Illinois, and, Yankee-like, in the absence of other employment, engaged in teaching "the young idea how to shoot," in addition to his other studies. These last he had to pursue zealously for a time, to perfect himself in the grammar of our language, of which he was entirely ignorant beyond the first rudiments, fearing that his scholars might know more of it than he did himself. By diligence he progressed so as to fill his station with honor, and was offered the situation of teacher of a high-school in a flourishing village. This his modesty led him to decline. In the spring of 1858, our friend left Illinois and went to Iowa, and at Council Bluffs amused himself in hunting and fishing. After this, he spent one year in teaching school at St. Joseph. While teaching school at this latter place Mr. W. composed a poetical satire, entitled "Political Patriotism," consisting of some 1,200 lines, for public reading. This he has read to the public on several occasions, but, he naively remarks, "politics changed too fast for my muse to keep up with the times, so I dropped it."

Since leaving St. Joseph, our friend has fallen back upon his trade, and visited several places, until, as we learn from a letter now before us, he says: "i am very comfortably situated in one of the most pleasant of the many delightful rural villages of Alabama. As business is not *flush* just now, I find plenty of time to devote to my guns and fishing-rods, ever accompanied by my tried friend Mr. A., the Luby of Clarence Clifford. But four miles to the east of us, the Black Warrior rolls its dark current southward, where our piscatorial exploits are incited by a knowledge of game from a sunfish up to a twenty-foot alligator, while along either bank deep forests and almost impenetrable swamps present a boundless field for the display of our *Nimrodial* propensities, for ducks, geese, turkeys, beaver, and some few deer, can be found therein. * * * *

"While you are shivering in your greatcoats, we are enjoying the most delightful spring weather, warm and pleasant as May in New York, with mocking birds, and spring flowers, and green trees, and garden vegetables, to charm and delight the senses. I look forward to many a pleasant hour during the long, hot summer, passed beneath the cool shade of sweet-scented china trees, beside some bubbling spring of pure water, where I can be lulled to half-asleep reveries by sighing zephyrs and the matchless song-birds of this sunny clime."

Of Mr. W. it may truthfully be said, *he is a self-made man.* Possessing a natural taste for hunting and adventure, his rambles West and South have afforded him great facilities for gratifying it, and at the same time of acquiring much practical knowledge of the people, their habits and customs. If Mr. W. had given nothing more to the world than his "Clarence Clifford," that alone would have been sufficient to prove him a writer of superior excellence. We have no hesitancy in saying that his series of chapters contributed to our Third Volume have been read with an avidity unsurpassed, and greatly contributed to the popularity of our Magazine. May he long live in the enjoyment of health, to amuse and benefit his fellow-craftsmen! S.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

(*Continued from page* 122.)

We have as yet only considered the action of motive-power on wheels while passing over a horizontal plane, and meeting obstacles which they have to overcome. In ascending an inclined plane, the lever-power is measured upon the same principle of computing the lever and weight-lines. It has been theoretically proven, by old and very respectable authority, that the leverage on small wheels placed on an inclined plane was just the same as that of large ones. If such is the case, our theory falls to the ground; for we all know, just as well as we can know any fact that frequently comes under our observation, that wheels of 4 feet in diameter will move a load up an inclined plane with less motive-power than wheels of 1 foot in diameter; therefore it is of no use to present a theory that is in conflict with every-day facts.

Fig. 6 will show, when examined, why this theory does not agree with facts. The large wheel, No. 1, and the small one, No. 2, are both ascending an inclined plane, *c*, of 45°, by motive-power (which is the line of traction), applied parallel to the plane, at the axle, *e*, in the larger wheel and *d* in the smaller; the point *c* being the fulcrum in both wheels. This point *c* is found by laying the square on the plane, and finding where a right-angle from the plane will touch the center of the axle; and we find, in this case, that it runs from the fulcrum, *c*, to the axle, *d*, in the smaller, and *e*, in the larger wheel.

From the point *a* to *c* is the length of the lever, and from *c* to *g* is the length of the weight-line in the larger wheel, which shows that the lever-line is twice as long as the weight-line; therefore, it will take half as much motive-power to move the wheel up the inclined plane as the wheel weighs. In the small wheel (No. 2), the lever-line is from the point *b* to *c*, and from *c* to *f* is the length of the weight-line; this also shows that the length of the lever-line in the small wheel is twice as long as the weight-line; therefore it would also take half as much motive-power to move it up the inclined plane as the wheel weighs. These are facts which have led the author of the article given on page 79 of this Volume into an error. It must be remembered that this axle is an imaginary one, occupying no space whatever, and is only used to illustrate a geometrical fact, which fact, when established, can be used to prove laws which govern motive-power, when applied to a real axle occupying space. We have said before that the line of traction was from the under side of the axle-arm in a straight line to where the motive-power was attached. In the forward wheels to a wagon it would be from the under side of the axle to where the tugs were attached to the hames of the harness; or at least such would be the case on a horizontal plane. On an inclined plane, or in passing over an obstacle, the case would be a little different. In the latter case, it would be at the point where a straight line drawn from the fulcrum towards the center of the axle would first touch the outside of the axle-arm.

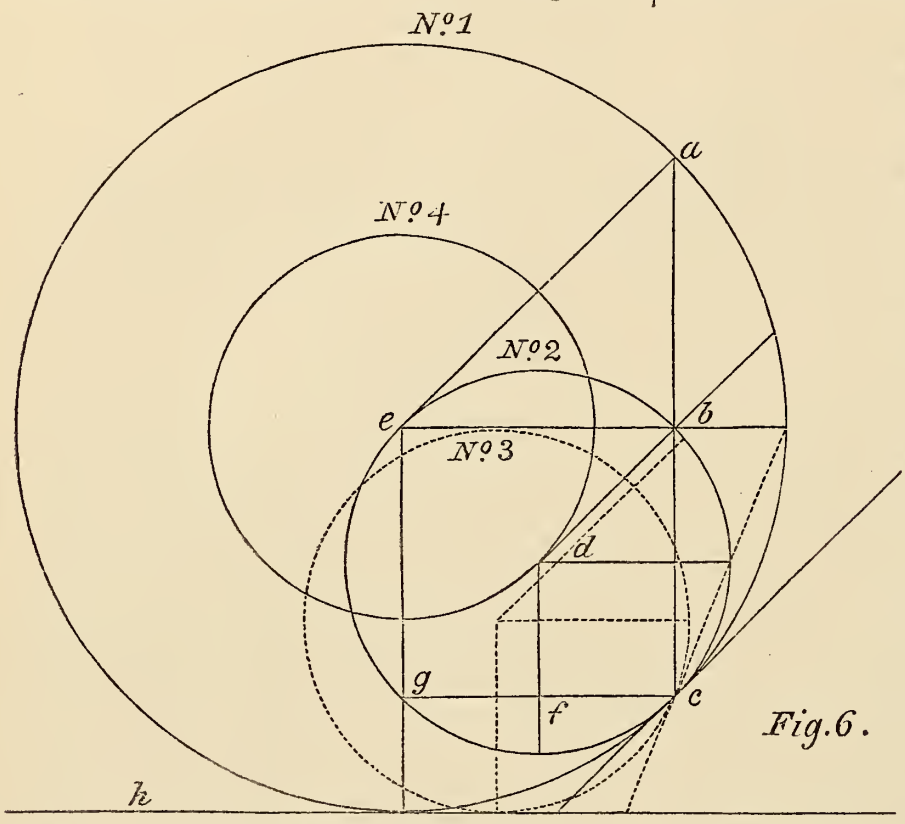


Fig. 6.

In Fig. 6 we have marked out a circle (No. 4) which is half the diameter of the large wheel, and equal to the small one, No. 2. We will call circle No. 4 the axle. Now in ascending this inclined plane of 45°, if the traction was parallel to the plane, it would commence at the point *d*, and the point where the traction-line crosses the lever-line, *a c*, which is at the point *b*, indicates the amount of leverage lost on the large wheel by enlarging the axle. In this case, the leverage will be just one-half its former power, while the weight-line remains just the same. Now apply the same axle (No. 4) to wheel No. 2, which is of the same size as the axle, and apply the traction in the same direction, which brings it at the point *c*, or the fulcrum, on the inclined plane; that would destroy the lever-line on wheel No. 2 entirely, yet the weight-line remains the same.

In these examples we have to state extreme cases, in order to make the fact upon which our theory is founded more apparent; but we will try one example nearer, if not quite in accordance with, every-day observation.

That a small wheel requires the same sized axle as a larger one, to sustain the same load, all will admit. Let us take two wheels—one 48 inches, and the other 12 inches, in diameter—with an axle 2 inches in diameter to each of them. In the large wheel the amount of leverage lost on account of the traction-line commencing on the under side of the arm would be $\frac{1}{24}$, and the leverage lost on the small wheel would be $\frac{1}{6}$, while the relative position of the weight-lines remain the same; therefore, as $\frac{1}{24}$ is less than $\frac{1}{6}$, so is the lever-power taken from the large wheel less than that taken from the small wheel.

It will be seen by examining the subject closely that, in gaining leverage by increasing the size of the wheel, there is always a counteracting influence which will destroy the leverage gained if we carry it too far; while, on the other hand, in gaining power by the reduction of the size of the axle, there is no counteracting influence as long as we can preserve strength with the reduction of the size. Therefore, if what has been said of Shortridge, Howell & Co.'s Patent Homogeneous Cast Steel, for carriage axles and tires, is true, it is an invention of the most vital importance. In axles alone, when properly constructed, and all the advantage of its superior strength gained, as shown by the last example, it will more than pay the price of an ordinary good lumber-wagon, and the heft taken off the tire of the same wagon will pay for another. A few cents to the pound sink into utter insignificance, compared with the advantages gained.

It will be noticed, in Fig. 6, that in the wheels 1 and 2 the lever and traction lines cross each other on the rim of the wheels, which is the result of that particular elevation of the plane which they are ascending, and which is 45°. This is the highest point to which the plane can be raised, and have the lever-line cross the traction within the wheel. After the plane raises above 45° the leverage can be computed by the distance to where the lever-line crosses the rim of the wheel, compared with the weight-

line. I have made the dotted wheel, No. 3, in Fig. 6, to show the difference of a lever-power in a wheel one-half the size of No. 1, in passing over a perpendicular obstacle. The two wheels touch the fulcrum, *c*, and the horizontal plane, *h*, in the same manner they would if rolled up against a perpendicular, the height of *c*. In this case the line and power will be computed by the length of the lever-line from the obstacle *c*, to where it crosses the rim of the dotted wheel, and the length of the weight-line to where it crosses the dotted gravity-line of the same wheel. In comparing the leverage of these two wheels, we find that the large one passing over the same obstacle would require half as much motive-power as the weight of the wheel, and the small one would require a little over $\frac{1}{6}$ more motive-power than the weight of the wheel, provided they were both drawn parallel to their ascending planes. The larger one would commence to rise on an angle of 45°, and the smaller one would commence to rise on an angle of about 68°, in the direction of the dotted line. This conclusively shows that there is a material difference in the operation of a small wheel in passing up an inclined plane, and going over a perpendicular obstacle; both lose power compared with larger wheels, but in passing over perpendicular obstacles the small one loses comparatively more power than it does in ascending an inclined plane.

Leverage can be gained by enlarging the wheels only to a certain extent. The forward wheels of a wagon must correspond with the height at which the motive-power or traction-line is attached to the hames of the harness, and the hind wheels must correspond with the height of the forward wheels. If the wheels are raised above these corresponding heights, they do not gain leverage; but, on the other hand, make an additional weight by the increased size for the team to move. The precise medium height between the two points is only attained by good judgment. If all the obstacles were of one height, there would be no difficulty in fixing the medium point; but, as they are not, it should be the object of the builder to proportion his work so that the average line of traction would correspond with the different cases, and for this purpose there must be some data to reason from. The following example exposes one defect in our present mode of building wagons and carriages that have a perch, which is an important one; and whether it was considered by the inventor of carriages without a perch, or not, certainly the later invention does away with the difficulty.

The forward wheels of carriages are generally made so that the axle is raised about 22 inches in the clear from the ground. In drawing the carriage, the line of traction is directly from the side of the axle-arm that is nearest to the fulcrum to the hames where the tugs are attached,

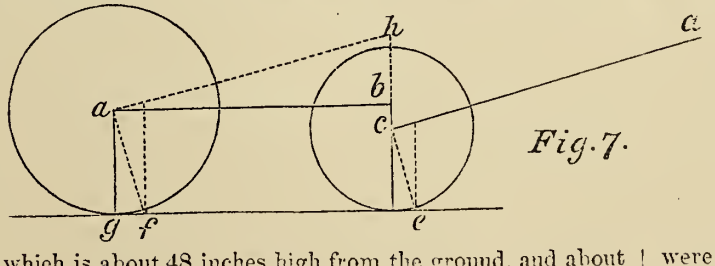


Fig. 7.

which is about 48 inches high from the ground, and about 8 feet from the axle, as represented in Fig. 7. This line of traction, in the forward wheels, is so arranged that we get the most power when the most needed, in such cases as going over sand, mud, stones, and every case of obstacles which a wagon is constantly meeting with on the road. They make a fulcrum to move the wheels over the point *e*, then the line of traction, *c d*, would be at an angle of 90° from *e*, which would be the point where the most leverage could be gained. Notice the hind-wheels in the same condition, and you will see the perch, *a b*—which is the line of traction for the hind-wheels—placed in a position so that it commands the greatest amount of power from the point *g*, which is a point that leverage is never wanted; but, place the fulcrum at the point *f*, and you will find that there is less than 90° between the fulcrum, *f*, and the perch, *a b*, which shortens the leverage at the very place where it is wanted. It is true that by increasing the size of the hind-wheels over the forward-wheels it makes a little more leverage than there is in the forward-wheels; but, by increasing the size it also increases the heft, which will nearly counterbalance what is gained by leverage, particularly in ascending an inclined plane.

As we have said, carriages that have no perch, but are connected by the body, do away with this difficulty, for this reason: the line of traction goes from the hind-axle, *a*, along the dotted line to *h*, which is above the springs on the forward-axle, which raises the line of traction to an angle of 90° from the fulcrum, *f*, equal to that of the forward-wheels. This style of carriages should be used in preference to any other, if for nothing else only on account of their lightness of draught.

There was, a few years ago another way of coupling, the wheels of buggies which was worse than the old-fashioned way of fastening the perch to the head-block. It was to have the perch run from the hind-axle directly to the forward-axle, and fasten by a crotch that took the king-bolt above and below the axle at the point *c*, in Fig. 7. This kind of coupling places the line of traction to the hind-wheels out of place, so that it never can come right; it is decidedly an entire waste of power. I believe this style has gone entirely out of use, for some cause. Only now and then we see an old buggy coupled in that way, which would be very simple and convenient, were it not for the waste of motive-power.

(*To be continued.*)

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page* 124.)

THE last month of autumn was fast drawing to a close. Frost had long since made its unwelcome appearance, and had succeeded, with its withering touch, in administering a blight to every tree and plant, by disrobing them of both leaf and flower. Such times bring a loneliness with them; when the leaves of autumn have faded and fallen, from the cruel effects of the icy finger of "Jack Frost," and the woodlands are strewn with them as if for expected guests, lightly is the sward carpeted with leaves of pale yellow enriched with veins of crimson.

In the economy of Divine wisdom, the seasons were established, to be perpetual through time; and to reverse these would undoubtedly threaten the destruction of our happiness to a great extent, and would clog the wheels of Nature's entire machinery, which has worked

so admirably in producing whatever was good, beautiful, or essential to life; yet, when we see the leaves and flowers seared and fallen, from the change of season from summer, with its balmy breath and floral robes, to the rigor of winter, with all its attendant inconveniences, we cannot resist a feeling of regret.

The beautiful foliage that had but a short time before clothed the entire view in the habiliments of summer, was stricken from the parent stem and had fallen dying to the ground, leaving those branches, that had first mingled their opening buds and then their expanding leaves together, leafless and bare. The cold northern blast, precursor of winter, had already swept over the land, clothing the outward scene in depression and gloom.

I had seen a harder winter, perhaps, than had ever been experienced in the Ohio valley,—deeper snow, winds more piercing, with more severity and rigor of climate, —yet, in my present situation, I felt inclined to shrink from the earliest impression of the coming season; not so much from the dread of winter as from the loneliness accompanying it. Notwithstanding the real pleasure I experienced in obtaining my present situation, I could not resist the desire to try my chances by "tramping." So, calling on my boss for settlement, allowing the remainder of the day as a "financial necessity," and packing my "kit" during the interval, I prepared for departure.

By the dawn of morning my baggage was on the way, and, having gone through the "ordeal" of leave-taking, I again sallied forth on the world's great thoroughfare, there to encounter new scenes and contract new associations, and to experience the many peculiarities manifest to the traveling jour. only. To have my baggage transported, I procured the services of a teamster going my way, for the sum of fifty cents, who, from his excess of loading, refused me a passage, and I was compelled to go on foot to Lancaster, a distance of nearly twenty miles, not deeming it advisable to await the next regular trip of the mail-coach and hazard the chance of procuring a seat thereon.

Lancaster is situated at the terminus of a side branch of the canal connecting Cleveland and the Ohio river, and is the capital of Fairfield county, which county, according to the census of 1860, contained over thirty thousand inhabitants. This canal is said to have been of considerable commercial importance in the way of transportation, running, as it did, through the center of the State, uniting some of the most business cities the State at that time afforded. But its prosperity, with its popularity, has long since faded—a death-blow having been struck when the first track of the "iron horse" was laid upon its bank; a fate that awaits all inland navigation, from the approach of that more improved mode of transportation, the railway.

The first day of my journey had closed, and I found myself, with lodgings engaged, at the best hotel in Lancaster, feeling thankful, indeed, that there were no more such days' travel in prospect for me. Taking advantage of the idle time after supper, I busied myself in gleaning information from the various bar-room loungers concerning the canal, the distance to different towns of note along the same, and various other items which might prove profitable along my journey.

I had been conversing with a young man of the town, who, in reply to my questions, said, "I can give you no answer concerning the canal, or the time the boats start, as this is about the last trip for this year; but one of the canal-agents boards here—he can tell you all about it."

"Is the agent present?" I inquired; to which he answered, "No, but it's time he was."

The latter information had scarcely been imparted when a tall, gaunt individual, with sallow visage and *sallower* mustache and whiskers (the two latter articles being worn exclusively for ornament, as there could absolutely be no benefit derived from a crop so sparsely set), made his appearance in the room. The ludicrous figure cut by this last-arrived gentleman was truly sufficient to excite the laughter of the most morose, and cause even the stolid to exclaim, "Backwoodsman!"

"There's the Captain of one of the boats, now," said my talkative friend, pointing to the awkward specimen of humanity that had just entered the room; "Mor'n likely he can tell you as much as any one." So, approaching the man, I soon made arrangements for a passage, the next morning, to Columbus, the capital of the State; after which the "Capt.," as he was dubbed for the sake of brevity, led off again, in the most laughable manner, detailing one comical story after another, bringing the house down, at the close of each, in the wildest outbursts of applause. One on the outside of the house might have supposed the audience within to have been carried away on the words of some distinguished orator, whose eloquence was being thus loudly cheered.

By sunrise my traps were all aboard, and we "stood off" to the north, against a sharp wind plentifully mixed with drifting snow, which caused the passengers to cluster in close proximity to the cabin stove. In two hours we had gained the entrance into the main canal, and shortly after were gliding rapidly over its rough surface, in a westerly direction.

Finding my fellow passengers to possess traits of character which would justify me in becoming intimate, I was soon on sociable terms with a majority of them. The day still continued unfavorable, precluding all possibility of remaining on deck or of seeing much of the country through which we were passing, consequently the hours grew dreary as the boat sped on. Various measures were proposed, for occupying the time pleasantly, and finally one was agreed upon and unanimously adopted. The Captain, who had figured so conspicuously at the hotel in Lancaster the evening before, was chosen president of the circle, and was to propose a programme of action. A committee was appointed to wait upon the Captain, who, after placing a substitute at the tiller, came down to the cabin and proposed that each relate in detail the history of the most prominent event of his life.

According to parliamentary usages, our hero Captain, holding the highest position in the company, "led off," giving an elaborate and graphic account of his career from the time he set out on the canal to the present. The comical, witty, and grotesque language in which the scenes connected with the history were related, brought loud bursts of laughter from the group continually.

The pipes were replenished and relighted, and the fumes of tobacco again filled the cabin, curling up on every side,—not disturbing the Captain, however, who still wrought the crowd up to the highest degree of mirth with his spicy narratives. The Captain's story had but finished, when it was announced from above that Columbus was in sight; consequently the Captain was called

above, and the passengers were relieved from what I considered a very uncomfortable task, at least as far as the story-telling on my part was concerned; for, while the Captain's narrative proved to be a perfect success, mine would certainly have proved a bore. The time on the boat had passed pleasantly away, and we had finally arrived at Columbus, the destination of the most of the passengers, where, after exchanging good wishes for each others' success and taking the parting greetings, we left the boat, being allowed the privilege granted in a land of liberty, of each taking care of himself.

By the next morning the weather had changed materially. The snow had ceased to fall and the sun shone out bright and warm, causing the ice and snow accumulated during the preceding twenty-four hours to melt rapidly away under its mild and genial influence.

As railroads were then a mere "speculative theory," and not an "established institution," I was compelled to abide my time and procure a seat in the first stage, for the arrival of which I would have to wait until evening. I spent the day, as most travelers do their leisure hours in large cities, in sight-seeing about the city. After visiting the different institutions, benevolent and educational, not omitting the Penitentiary, the beautiful State House, and many other edifices of note in the city, I concluded to pay a passing visit to my brother "chips," if there were any. I soon completed the circle of shops, chatting with different workmen as I went, some of whom treated me very politely, conversing freely upon the various topics connected with the business; while others of more cynical dispositions, whose perverseness and cold selfishness suggest to one's mind an iceberg moving about in human shape, snubbed, with a cold response, every question put to them. How vast are the varieties of human disposition! One author says, and very truly, too, "The proper study of mankind is man."

If there is one trait of character, as a general thing, more fully developed than another, in our large cities, it is that of turning, at first sight, the cold shoulder to the traveler—of meeting with sterile indifference the stranger who makes his transit through their midst. There are exceptions to every rule; and the exceptions to this one I find wherever I go. There are always some whose high intellectual attainments, correct education and sociable disposition preclude those feelings of resentment. By such, a man is not condemned until found guilty, and by such the traveler is treated with respect, if he but offers an opportunity. Evening had set in, and the lamps were being lighted in the different business streets, throwing out a dim light to battle for the supremacy against the light of day, that had not yet been shut out from the western horizon by the sable curtains of night. The stage from the East had arrived, leaving passengers at the hotel, giving five minutes to get ready for the next coach. The five minutes were soon ended, and my traps were soon secured on the after-boot, while I took a seat in the stage, making myself as comfortable as possible in the way of clothing, shutting myself out from the world under the folds of a shawl, great-coat and traveling-cap—the two latter of which served to effectually conceal my face from view; and yet, ensconcing my hands in the fur-lined buckskins, I congratulated myself with being ready to give "Old Winter" a fitting reception, be his temperature ever so low. When the passengers, being four in number, including myself, were all in, the usual interrogation, "All aboard?" was propounded, the long whip was twirled about, followed by a report similar to that of a rifle, and we dashed forward, soon leaving Columbus in the rear.

There is a great deal of actual enjoyment to be taken and amusement experienced by those who can content themselves with a ride on the old-fashioned stage-coach. While many object to it as being too slow a method of conveyance, I don't; it is fast enough for me. If one wishes to see the country through which they are traveling, nothing could be more appropriate than this manner of conveyance—rail-cars being too accelerating for that purpose. Yet I will admit this fast age truly suggests the propriety of fast conveyance. And if the doctrine of predestination be true, I presume we must succumb—being unable to go slow if we wanted to.

Everything passed on smoothly and pleasantly enough, save the weather, which increased in coldness until the roads and highways were frozen to the density of the firmest city pavement. I had left over a hundred miles of my journey behind since leaving Columbus, and nothing of note had occurred, when, about ten o'clock at night, we halted at a station. Peering through the side-glass, I observed a dim light shining through a door, over which was revealed, by the coach-lamp, the words, "Knightstown Post-office." In another moment the mail-bag was hurled from the roof of the coach unto the platform. The noise of the bag, as the postmaster hurried it from the platform into the office, rubbing his hands occasionally from the effects of the cold nor'wester, had scarcely ceased, when light foot-steps were heard on the platform followed by the rustling of silk, and the coach-door opened to admit a lady, who, without ceremony, drawing her traveling-shawl closely about her, took a seat by my side. So thoroughly was she ensconced in furs and fabries that I was completely defeated in my efforts to get a view of her face. However, we were soon under way again. Hours wore away slowly, and nothing intervened to disturb the monotony of the trip, save occasionally stopping at the post-offices along the way. My curiosity to know something of the history of my fair companion gradually neared culmination, until, at length, I resolved to try the virtue of words, at all hazards,—so, turning toward her, I remarked—

"Very inclement weather for traveling."

"Yes, sir," she replied, in a musical voice, "and more especially where one, like myself, has a long journey before them."

"How far, may I presume to inquire, are you traveling?" I asked.

"I am unable to answer your question precisely as to distance, but I am going to Perchville, in this State; you may have some knowledge of the place, perhaps," she answered.

The name of Perchville vibrated very familiarly, and pleasantly, too, on my ear, remembering that I was not in Ohio, and taking out my memorandum and glancing over its pages, by the light of the lamps, my eye detected, on a neatly penciled card, the following: "Annie Clifton, Perchville, Indiana."

(To be continued.)

FEAR.—Good men have the fewest fears. He has but one who fears to do wrong. He has a thousand who has to overcome that one.

For the New York Coachmaker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 125.)

Gigs or one-horse chaises were made nearly of the same pattern, being distinguished from each other by the term step-piece, a tub-bottom, or a chair-back gig. The term "gig" proper, was distinguished by hanging the body on braces from the spring, as seen in Fig. 27. Curricles being then the most fashionable style of two-wheeled vehicles, the bodies of such were used in building gigs so as to imitate them as closely as possible in the mode of hanging, and these were called gig-curricles. (Fig. 30.) They were designed to be used chiefly with one horse, although occasionally two were employed. They were made fully as light as the gig, and were found very convenient where the roads did not admit of two horses abreast. When two horses were used, three sockets, A, B, C, answered by which to secure a pole to the vehicle. This carriage has what is called a "trunk-

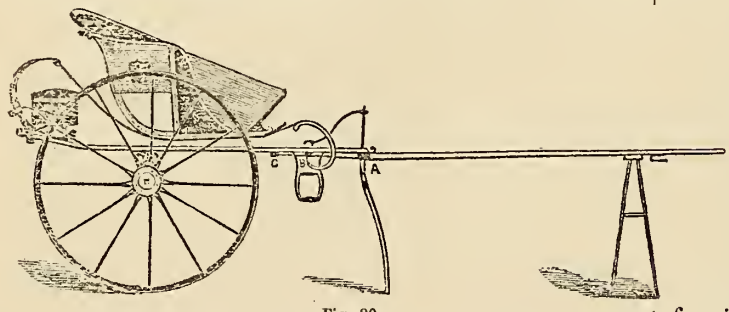


Fig. 30.

boot," and C-springs behind, and "French-horn-springs" in front, and is hung on "thorough-braces," and cost about £54, or $261 30.

The chair-back gig was hung from the whip or long-tail spring to a peculiarly shaped loop, at the center of the back-pillar, by a loop-strap. The front of the body was mounted on "single elbow-springs," as seen in Fig. 27.

Felton says: "Whiskies are one-horse chaises of the lightest construction, with which the horses may travel with ease and expedition, and quickly pass other carriages on the road, for which they are called Whiskies. The principles on which they are built are the most simple and light; anything which adds to the weight or complexity should, in this carriage, be particularly avoided; to give ease in riding and lightness in draught, are the main objects which ought to be attended to. They being principally intended for lightness, need not be furnished with that extraordinary number of springs which are used for other carriages, and from which the bodies are suspended. The springs of this carriage are fixed on the axle-tree, and on the springs the carriage is placed, and with the carriage the body is united; so that all the dependence for ease is on the springs from the axle-tree, which, if properly manufactured and of sufficient length, give as much ease to the rider as those which are differently formed, and, in some instances, more [elliptical springs were not yet invented], as they are not subject to such frequent vibrations as are in others so frequently experienced. They are now the most prevailing fashion of two-wheeled carriages, and are lighter and cheaper than any others."

The caned whiskey, Fig. 31, was considered the lightest and *cheapest* of all others, and had a light, airy appearance for summer use, although not considered as strong as the paneled body, "but were less in the expense for paint-

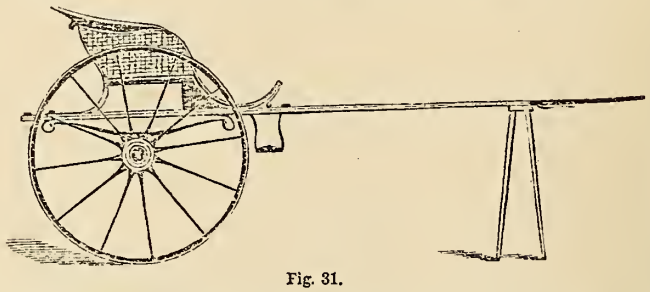


Fig. 31.

ing and lining," and chiefly intended for country use in fair weather, consequently they did not require tops, aprons, &c., which go to swell the expense and increase the weight of manufacture. They cost £24 10s., or about $118 58.

The half-panel whiskey was in form very similar to the caned one, with a sword-case, top, and sometimes with a place for a trunk, as in Fig. 30. These were hung on what were formerly designated grasshopper or double-elbow but are now known as cradle-springs. The dash, instead of being attached to the toe-board of the body, was fastened to the front-bar of the carriage. The step was a plain, folding one.

Fig. 32 represents the grasshopper or three-quarter paneled chaise or whiskey, after an old pattern, but, Felton says, "a very good one, as all the framings form an agreeably connected line; it being exactly on the same principle as the whiskey, which was built from them, having the springs in the same way, fixed to the axle-tree, and the body united with the carriage, but only different in its shape; the framings of the body being much wider, shows more panel, which extends

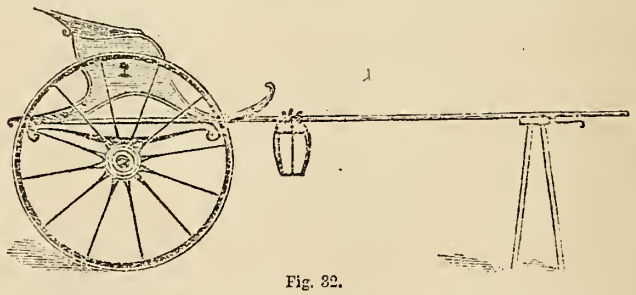


Fig. 32.

to the shafts, at the corners, and is arched up in an agreeable form between the bearings. They have a more solid appearance than the whiskey, and are on that account preferred by most persons, and, in particular, by those called Quakers, and for that reason are by some called Quakers' chaises, and, by others, serpentine or sweeped-bottom chaises. As they are built on so near a principle with the last-described carriage (the half-paneled whiskey), there is nothing more to recommend them than the design and the superior strength on account of the panels filling most of the framings."

The body of the whiskey curricle was after the same pattern as Fig. 30, and only differed in the carriage-part, as it was arranged for one or two horses, as might be required.

Buggy was formerly the cant name given in Europe to such vehicles as phaetons, chaises, or such as contained one person on the seat, "principally intended for lightness in draught, for the rider to sit snug in, and to preclude the possibility of an associate; mostly used by outriders." The name, as used in America, is applied to a lighter kind of vehicle. In England the name appears to have become obsolete.

The rib-chair, or Yarmouth cart, used chiefly for lawns and parks, without springs, completes the catalogue of vehicles as they existed twenty-five years ago. Our author says these were not lined, as they were frequently left out door exposed to the weather, and made very low and light, with broad tires so as to prevent their making deep ruts as they were drawn along, and were often substituted for the whiskey, although designed as a garden-chair. The following remarks show that human nature has not changed much. Felton tells us, "Whatever may be the motive for using this carriage in preference to the whiskey, certain it is that, if a carriage in the shape of a wheel-barrow was by accident introduced, it would become a fashion, independent of either appearance or ease, neither of which these new-fashioned garden-chairs possess, when used on the roads, unless built upon springs, and lined as other carriages are."

We have now brought our history down to a very interesting period—that in which railroads were generally introduced,—when stage-coaches were to find their rival, and it is well they did, for they were becoming nuisances in some respects. In 1770, a case, brought by the passengers, in the Court of Common Pleas, against the proprietor of a stage, where the driver wished to compel them to dine at a "hedge alehouse" against their inclinations, and so, because they dined at Epsom, he left them to find their way to London on foot,—the owner was mulcted in damages to the amount of twenty pounds. Again, the proprietors of stage-coaches had become so avaricious that they crowded them so full of people and baggage that they often broke down. The *Annual Register* for this year (1770) mentions, that the Hertfordshire stage, with thirty-four people, broke down on the 6th of September, when one man was killed on the spot, two women broke their legs, and very few of the whole number escaped severe injuries.

But a brighter day was dawning upon the traveler. As early as the first year of Charles II., a Mr. Beamont, at Newcastle-upon-Tyne, gave a series of experiments on the exploration of coal mines and the conveyance of their contents by carriages of a new construction. His experiments failed, and he was ruined; but this was unquestionably the incipient beginning of railroads. Thirty years afterwards wooden rails were laid from the coal-pits to the Tyne, on which carriages on rollers, drawn by one horse, moved five chaldrons of coal with ease. In 1760, iron plates were used to cover the wooden rails, at Colebrookdale; these being superseded, first by wrought and then by cast iron ones. These tram-roads were afterwards laid on inclined planes, and from the highest elevation, by windlass and pulley, these carriages were passed up and down without the aid of horses. Here invention seems to have paused, until the powers of steam were brought forward.

To detail all the improvements in the early history of steam power does not belong to our story. Suffice it to say, that various attempts were simultaneously made to construct steam-carriages for travel on common roads, and different patents were granted to individuals for their successive improvements, until at last George Stephenson obtained a patent for a locomotive, which placed him far in advance of all competitors. Six years afterwards (1821) an act passed for making the first of the modern railways from Darlington to Stockton, and, in five years afterwards, Mr. Stephenson's railway carriages, each containing twenty-six passengers, drawn by a single horse at the rate of ten miles per hour, were running on it. In 1826, another act was passed incorporating the Liverpool and Manchester Railway Company, and although Mr. Stephenson was their engineer, still, locomotives were pronounced a visionary speculation until 1829, when four different engines were tried together, with such success that on the 15th of September, 1830, the railroad, as now used, was fairly inducted.

We have now gone a little out of our way, *on the railroad*, not because it is a legitimate part of our history, but in order that the reader might see for himself—if he can discover it—what effect their introduction has had on the coach-making business. When railroads were first introduced, the coach-makers pronounced "their craft indangered," and even now there are many who believe railroads are detrimental to their interests. Without attempting to decide in a matter where so many *Doctors* disagree, we must in our next article go back to 1800, and bring along our history of coach-making in regular chronological order.

(*To be continued.*)

Pen Illustrations of the Drafts.

EXTENSION-TOP PHAETON.

Illustrated on Plate XXXI.

THIS design, from a Western friend, is intended for something very light—a phaeton for four passengers, with a caleche top. Although we cannot claim much novelty for it—the original, of which this is a modification having already been before the public for at least five years—yet it is still very popular, and likely to continue so for some time to come, since a carriage built after it makes a very convenient, as well as a handsome, vehicle; a sufficient recommendation to all practical minds.

The construction of the body is very simple, the panels being formed from solid whitewood plank, and the mouldings worked on, the same being secured to the rocker by screws. A very important matter in building a carriage such as this, is to have it *well plated with iron* the entire length of the rocker, on the inside. Carelessness in this respect has proved the direct cause of many serious consequences.

MANHATTAN YACHT BUGGY.

Illustrated on Plate XXXII.

NEW YORK CITY having the honor of inventing this kind of buggy, we have properly named it the Manhattan. We present it to our readers as the latest fashion for the

spring of 1862. It differs a little from the one given last year—Plate XVII, Vol. III.—as a comparison with it will prove. The body should be formed from the ash plank—say 1¾ inches thick,—the lower part worked to a concave, shown in the draft by tinting, extends the entire length and occupies the chief portion of the side. The boot is paneled, and should be carefully painted, as failure in this particular ruins the job. In the seat, turned sticks or spindles are abrogated, the pillars, rails, &c., all being planed square in form, and having the corners merely removed with a file sufficient to render them the more practicable and easily painted. As may be seen, the interlaeing in the seat is the readoption of an old fashion. The painting of this buggy should be carefully done, and without polishing, a clean flowing coat of the best English varnish should be applied in finishing.

NEW YORK UNION BUGGY FOR 1862.

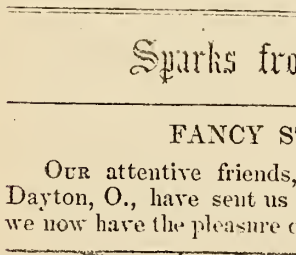
Illustrated on Plate XXXIII.

We present this design as *the* fashionable Buggy for the spring of 1862. A more high sounding name might have been applied to it, adjectively, but being, in the conception, a simple combination of the square and yacht buggies, that circumstance induces us to name it the Union Buggy as a very proper one. As our friends may see, it is a paneled buggy, with a straight and narrow bottom frame and shallow sinking. Instead of as in our drawing, the seat would look well paneled clear up, as in the design on Plate VIII., or a stick one, as in other drafts in this Volume. The lining (what little is required) may be blue, or any other colors of cloth, as fancy dictates.

Sparks from the Anvil.

FANCY STIRRUP-STEP.

Our attentive friends, Messrs. Watters & Bro., of Dayton, O., have sent us the beautiful design for a step, we now have the pleasure of presenting to our readers. It



was originally designed for the buggy exhibited at the late Ohio State Fair, and alluded to on page 99 of this Volume. It is claimed, that a step of this kind can be put on a buggy with but little if any more trouble than in putting on one after the old pattern.

In this step, the branch-scrolls are riveted to the middle or tread portion, after they are finished-up by the filer. The scroll irons, ¼ inch in thickness, scant, would be heavy enough for a phaeton or light carriage. The collars may be plated to suit the taste of the manufacturer or his customer.

PATENT SADDLE-CLIP, FOR CARRIAGES.

Brewster & Co. vs. Miner & Stevens.

(*Continued from page* 132.)

Dec. 30.—Examination resumed. *Peter J. Doty cross-examined by Mr. Gifford for complainants.*—*Q.* In your examination [see page 130] you speak of spring-perches; describe such spring-perch?

A. There was an eye turned to take a bolt through the jack, so called; some were crooked and some were made straight to suit the sweep of the body under the spring-perch stays, projecting out from the axle with an eye on the end of the stay which fits into the jack for a bolt to pass through; extends to the front axle; a jack fastens down through the spring and bed of the axle, and one leaf of the spring-perch runs under the iron-axle, a bolt through that and a nut underneath. On the top it is the same way, except there is a cast-iron fifth-wheel on the top and a wooden spring-bar on the top of that.

Three jacks were used in connection with a spring-perch; "one was placed in the center, to support the spring, bed and axle together and a perch attached to them. The other two secured the bed to the axle, set on about 20 inches from the center; also to stay the carriage. By "staying the carriage," witness said he meant "staying the perch back to the beds; keeping them in their places; keeping them square, as near as he could come at it."

Q. Describe the shape of what you call a jack?

A. There are a great many different kinds of jacks. If you want any particular one, I will describe it.

Q. I mean what you call a jack in your answer to the question next but one before the last?

A. I don't know as I can describe it any different—I thought I had described it.

Q. If you take a straight piece of iron, bend it at right-angles at each end, and punch a hole through each of the ends bent over to receive a bolt, does that constitute a jack?

A. I don't know what you mean by right-angles.

Q. Did you say you were a blacksmith, in your examination?

A. I believe I did, sir.

Q. If you were to take a straight bar of iron and undertake to make out of it such a thing as you have called a jack, in your examination, as being connected with a spring-perch, what would you do with such piece of iron? State all.

A. I should cut it in two, in the first place, or cut a piece off, and should splice it on the other; then I should fuller it in and round it up, and should punch two holes in the ends where I had rounded it up; then turn them in a vise to suit any eye they were to be used for; flatten the strap out and shoulder it down; cut threads on the ends of them, place nuts on them; then the jack would be formed, as far as that was concerned. [A number of questions and answers followed in relation to the manner of securing spring-perches to the axles and springs of carriages, of no interest to the craft, familiar with them.]

Q. On your direct-examination you say that, in 1845, at Rahway, you made clips or altered them to the form shown in Exhibit F, except the saddle piece being shorter, for wagons, and you think that as many as a dozen were made with the clips so arranged—Who made those wagons—that is, who is the proprietor of the shop where made? Describe each of them generally, and state who

had the wagons they were used on, and what became of them, or any one of them?

A. The man's name was Phineas Frazee; they were placed on buggies about all alike: can't tell who had them; can't say about what became of them. He was shipping carriages South at the time: can't say whether they went there or not.

Q. Is Frazee now living? *A.* I can't say, sir.

Q. When did you last hear where he was, or see him?

A. About six months ago I heard he was down South in Charleston.

Q. When did he leave Rahway?

A. Well, I can't state the time.

Q. Did you work for him in 1845?

A. If my memory mistakes me not, I think I did, or in that neighborhood, any how.

Q. Who was you working for at the time you say you made clips like model F, except that the top piece was shorter?

A. I believe I stated once before, I was working for Frazee.

Q. Who else at that time was working for Frazee?

A. A man named Thos. Morrell, a painter; Andrew Nestmer; one —— Squire; that is all the journeymen I remember, the rest were apprentices.

Q. Give them?

A. One was named Abram Myers, James Phillips, James Ray, and others whose names I do not remember.

Q. Where are any of the persons named?

A. That is more than I am able to say. Some of them have gone to the war, and Myers is out at Nashville, Tenn.; Ray is in Orangeburg, S. C., or was the last I heard of him.

Q. Did any one, and if yea, who, assist you or work with you at the time you say you made the clips in 1845?

A. Some one assisted me, but who I disremember; sometimes I had one and sometimes another.

Q. You say you think there was a dozen such wagons made; can you tell when the last of them was made?

A. No, sir.

Q. Through how much time did the making of them extend?

A. That is more than I can say; I never made them direct through.

Q. How were the back axles, springs, and bed-pieces of light wagons secured together, in 1845?

A. By means of bolts going up through the axle-bed and spring, with a nut attached to the top of the bolt.

Q. Are you not aware that when the spring-perch, made by the Spring-Perch Co., was secured to the axle, that bolts passed up through the axle, bed-piece, and springs, with nuts to secure the parts together?

A. Those made by the Spring-Perch Co. might have been made in that way; others made them differently.

Q. Did you know of any who made them different, except what you said you made in Rahway; and if so, please state who it was, and when they were made, and where the persons who made them now are, and describe minutely how they were made different by any person, and confine yourself to what you know and not answer from hearsay?

A. I did not know of any person who made them except the man I worked for; I did not know of any others at that time.

Q. Did you mean, on your direct-examination, to swear that spring-perches with clips, such as you say you made in Rahway, were used to a great extent; and if you did so intend to swear, then give us every instance that you know of their being so used, including the names of the persons so using them, the places where, and all the particulars relating to the same, and avoid stating anything from hearsay?

A. No, sir; those that I made were such as we used in that shop.

Q. Who, if any one, told you to make and attach to the axletree of wagons clips made as you stated you made in Rahway, in 1845?

A. I was ordered to make the spring-perch by Mr. Frazee, as they were somewhat cheaper than what we could buy them for. I made the balance of the work on my own responsibility.

Q. Was you then working by the piece, or otherwise?

A. Working by the hour.

Q. Did you make the spring-perches yourself?

A. I made them myself, what there was of them to be made.

Q. Did you make the spring-perch like those made by the Spring-Perch Co.?

A. Not precisely like them, a little different. They answered the same purpose.

Q. Describe the difference between what you made and what they (the Spring-Perch Co.) made?

A. The Spring-Perch Co. put bolts up through from the bottom of the axle, with a nut on the top generally; I made my jack pretty much as I had done before, running a stay underneath the perch to the bottom of the axle, attached to the clip, and it answered the same purpose as the bar represented in model F. Some I made without the jack put to it, by letting the back end of the spring-perch into the back axle, and staying that underneath, the same as described before, doing away with a portion of the jack and king-bolts, running up through the spring, with the heads let into the wood, with the bolt riveted on top of the spring. This last kind was some of the dozen, I think. The last kind had a single-clip, the same as in model F, except the side pieces that formed the jack.

Q. Were these the only differences between the spring-perches made by the Spring-Perch Co. and those made by you?

A. No, that was not all the difference; different irons on the ends of the stays attached to the back part of the axle; instead of working in a jack, it came underneath the axle, and the clip fastened down on the axle, with holes in the ends of the stays, and fastened with nuts underneath.

Q. Did you make all the spring-perches that Frazee used?

A. I made all he used at the time I worked for him, except what he bought from the Spring-Perch Co.

Q. What quantity did he get of the Spring-Perch Co., and was it before or after you made yours that he obtained them from the Company?

A. I couldn't say what quantity he used, whether a dozen a week.

Q. Was there a dozen a week?

A. Sometimes more and sometimes less; he only made one a week, and then I only occasionally made one as I had time.

Q. Why did you not attach the spring-perch to the hind-axle, spring, and bed-piece the same as the Spring-Perch Co.?

A. It was cheaper to make them the other way.

Q. In your examination in chief, you say that the defendants commenced to make clips like exhibit C some three years ago; can you state the exact time?

A. No, sir.

Q. How many like model C were made by the defendants? *A.* That is more than I could tell.

Q. Was that kind liked, and by whom—by anybody?

A. I liked the way they were made myself, and others liked them, as far as I know.

Q. Did you see that model (C) before your examination in chief? *A.* I presume I did.

Q. Do you not know that you did?

A. One like that, or one very much like it.

Q. Was that at the time you worked for the defendants, in Broadway? *A.* Yes, sir.

Q. Did you work by the piece, or otherwise?

A. Sometimes by the piece, sometimes by the day.

Q. How was it with the work that you did on the clips and hind-axles of wagons, if you did any?

A. Some by the piece, and some by the day.

Q. Do you remember about that?

A. Not distinctly.

Q. Working by the piece, which would you charge the most for,—like exhibit C or exhibit A?

A. I don't think we got any difference in the price; we might have; I do not know that we did.

Q. When working by the piece, the rule was to charge by the wagon, was it not; and, if yea, state generally what work that included?

A. We generally included the iron work—everything except the springs and axles; but Miner & Stevens, they hooped the wheels themselves.

Q. Did you ever iron wagons by the piece, in which the back axle and its attachments were secured by bolts going through the axles and other parts?

A. Yes; plenty of them.

Q. Which did you charge the most for, those secured by bolts and single-clips, or such as in exhibit A or C?

A. Generally got more for those secured by the clip.

Q. Have you any entry or charge, or any memorandum of any kind, from which you could fix the date more definitely, when the defendants made a clip like exhibit C?

A. No, sir.

Q. Do you not enter your piece-work in a memorandum or other book? *A.* Nothing of the kind; no, sir.

Q. How long did you work for Frazee; from what time to what time?

A. Couldn't say exactly, was with him two or three times.

Q. When did you first go with him, and when was you last with him?

A. I first went to work for him about 1843 or 1844; in New Haven last, if I mistake not, in the spring of 1846?

Q. Where did you understand the works of the Spring-Perch Co. to be. *A.* Understood at Bridgeport.

Q. How long since you last worked in Rahway, and for whom?

To this last question and others, witness replied that he worked for a man by the name of Penoyer, for two or three months, leaving in July, 1861. Previously he was with Wm. Flatt and Mr. Ackerman; none of these gentlemen had made any clips with solid eyes; they all used a separate clip. [We have now given a full report of this case—all the testimony taken. At this stage in the proceedings, the suit was withdrawn by the plaintiffs—they paying one-third of the expenses of defendants' witnesses—on Harvey J. Miner, one of the defendants in this suit, making an affidavit that his firm had never, in a single instance, made or used any clip on their wagons such as described in the letters patent of Brewster & Co.]

Paint Room.

For the New York Coach-maker's Magazine.

ADULTERATING LINSEED-OIL.

A PRACTICE has sprung up, within the last five years, of adulterating linseed-oil, which has become so common in the West, that no retail dealer can afford to sell pure flaxseed-oil at the usual prices. The practice of mixing it with other ingredients seems to have commenced with the manufacturer or wholesale dealer; and in this Western locality the retail dealer carries out the cheat to any extent, so that he will be able to enter into competition with other retail dealers and save a profit. To me, as a painter, it has been the greatest source of annoyance that I have ever experienced in a long practice at the trade. I did not discover anything wrong about the oil that I was using until about three years ago, when my attention was called to the subject in a very unpleasant way,—by complaints from some of my customers that my work did not wear well; and on examination I found they had good reason for being dissatisfied. After that, I examined the wearing qualities of my work very closely, and, while I could not find any that seemed to wear well, occasionally I would find a job from which, when any one undertook to clean off the dried mud, the paint would come off with the mud, down to the priming. I could not tell why there should be any difference in the work, as the paint was the same, and mixed just the same. I bought my oil in small quantities, as I wanted to use it, of a dealer that had a good reputation, and the boiled oil, particularly, dried better than any that I could prepare myself.

I had no excuse that satisfied myself, therefore I could only say to my customers that, they could see the bills for paint that I had bought of a reputable dealer, which would show that I had always bought the best paints that could be had of him, and that I had applied the paint to the best of my knowledge, after a long and steady practice at the business.

After being troubled for a long time with this worthless oil, I have found a way for detecting it when adulterated, which all painters, or those who have any occasion to have painting done, will do well to remember when they purchase oil for their work. *It is simply by the smell and taste.* There are but few men who have not noticed the peculiar smell and taste of flaxseed-oil. The cheat, with a very little ingenuity, can be carried out so that we are completely deceived so far as looks are concerned: but, come to test it by smelling and tasting, the fraud is so apparent that I am really ashamed to acknowledge that I have so long been deceived by it.

The oil used to adulterate the linseed-oil with is nearly colorless, and, when mixed, does not have any perceptible smell, and but a very slight bitter taste. Those who are not accustomed to using linseed-oil, would do well, when they are buying oil, to procure beforehand a trifle of pure flaxseed-oil of some one who is a judge of the article, and

then by comparison they can easily detect a cheat, should any be attempted. I have seen a barrel of the worst kind of adulterated oil, that came from Geneva, N. Y., to this place, about a year ago, and which is not all used up yet, giving me a fair chance to compare it with other oils; also, it proves that cheating is not particularly confined to this locality.

Now, the inquiry will come up—What kind of oil can it be adulterated with? Some will say, fish-oil; but the painter knows that cannot be, for it would not dry, and, furthermore, it must be some cheap oil. When I have suggested that it might be coal oil, the objection has been that, if so, it could be detected by the smell. In one case I have known boiled oil, that dried and worked well, to smell strong of coal-oil. I did not have any opportunity to know anything about the wear of the paint in this case.

I have lately been informed by an agent for a Pennsylvania carbon-oil company, that they manufactured a kind of oil which they called "sweet kerosene," that was used, with the other ingredients, for manufacturing burning-fluid, instead of turpentine. It is a volatile oil, free from any smell, and will mix freely with alcohol or other oils. It is this oil that I have fixed my mind on, as the one that does the mischief, since it is the only one where the price would admit of its being used. I believe the secret of using it is not confined to a few, but that most retail, as well as wholesale dealers, understand mixing it.

A trial of coal-oil was recommended by oil dealers to painters in this country, some seven or eight years ago, on account of its being so much cheaper than linseed-oil, but it proved to be a complete failure. In two years, the paint would rub off as readily as though it had been mixed with water. It was used, for the two first coats, to paint a bridge in the city of Berlin, Wis., and the third coat was painted with linseed-oil. The second and third coats were rough-cast with sand. This way of using it proved to be the most disastrous of any I have seen. The last coat forms a scale over the whole, and the paint will neither wholly come off nor stay on, which prevents it from being repainted with any possibility of having the paint stay on where it is scaled over. No matter what the oil is adulterated with, one thing is certain—it is worse than throwing money away to buy and use it, and that it may be easily detected in the way I have stated.

BERLIN, *Wis.* HENRY HARPER.

Trimming Room.

IMPROVEMENT IN PREPARING LACES.

IN the manufacture of machine-made laces considerable improvement has recently been made in Nottingham, England, by Francis B. Baker, which he has patented there. It has heretofore been the custom, after taking the woven fabric from the loom, to extend it in a frame, and then apply a dressing of some material for the purpose of stiffening the lace, by which operation, in consequence of its being unavoidably applied to the floss, or thick ornamenting parts of the silk or cotton in said laces, much of the luster and brightness in the colors have been destroyed.

Mr. Baker's improvement consists in applying the dressing or stiffening material to the threads forming the ground-work of the lace before the figures are woven in. After this is done, he extends his laces in frames as usual, and, after submitting them to the action of steam, allows them to set and dry. The effect is, the ground-work is sufficiently stiff for all practical purposes, while the ornamental figures, being free from the stiffening material, are presented in all their original beauty and lustre.

SHAM-BUCKLE FOR FOOTMAN-HOLDERS.

IN Fig. 1 is represented a back view of an imitation buckle designed for a footman's holder to rockaways and other carriages. The frame, as may be seen, is eight

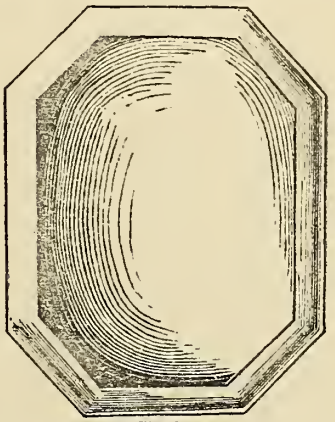


Fig. 1.

Fig. 2.

cornered. This is formed of common silver-plated moulding, with a wooden convex center, over which is drawn a patent-leather covering, which our artist has endeavored to show by tinting.

Fig. 2 represents a side view of the buckle, with its hook fastening for attaching the same to the holder. The novelty and beauty of this arrangement commends it to the attention of our readers.

For the New York Coach-maker's Magazine.

TO ————.

BY LUA DELINN.

My spirit, unfettered,
Oft wanders at will,
The loved of the olden
Time seeking out still.
Last night, in my dreaming,
With thee at my side,
I stood on the green
And sunny hill-side,
Where, years ago, standing,
One bright afternoon,
Looking off on the sunshine
And roses of June,
I pictured the future:
Thine sunny and bright
As that even—June's brightest—
Mine calm as its night.
Distinct in my dreaming
The voice of our mirth;
Bright the pictures the sunshine
Flung down on the earth.
But waking, at morning,
No pictures were there,
Nor voices of laughter
Rang out on the air.
Dear June had departed,
Her roses were dead,
Its dark skies above me
Here also had spread.

The New York Coach-Maker's Magazine.

MAY 1, 1862.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

BOUND VOLUMES *of this work are sold, singly, for* $3.50 *per vol. or Vols. I., II., and III., when purchased together, for* $9.00. *The three volumes, bound (including the subscription for the fourth year), will be furnished for* $11.50. *The three volumes, in numbers, will be sent for* $8, *when ordered. Single volumes, in numbers, will be sold for* $3, *or any single number for* 25 *cents.*

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COACH-MAKERS' LIBRARIES.

THERE are many good reasons in evidence why every true lover of his occupation should have in his library every book he can procure touching upon the subject. Coach-makers, especially, need such works. The business is decidedly an artistic and complicated one, and, while we advocate study, we would offer no inducements to those who have no practical knowledge of the trade, for entering into it; but would rehearse to those who have been educated to it, the language of an old author in respect to books generally: "These are the masters who instruct us without rods and ferules—without hard words and anger." Another writer says: "Books are the great storehouses of the knowledge which the observation, experience and researches of successive generations have been accumulating. They offer to us the intellectual wealth which myriads of laborers have been gathering together, with painful toil, thousands of years." It is true, as respects coach-making, that the thousands of years' intellectual wealth has been lost; but believing that the few books recently published upon the subject are "a storehouse of knowledge" not to be overlooked, and that it is very important that every sincere lover of his business should possess them, we embrace the present opportunity to name a few of them, in the hope that we may thereby promote the interests of our readers.

A few years ago, scarcely a single volume could be found in this country on the subject of carriage-making. Its history, even, was completely *smothered* in old and musty tomes of the dead languages, which was left to the present century for tracing out of the sinuous course it had taken, and to exhume it from the debris of ruined cities. Adams, in his "English Pleasure-Carriages," published in London, 1837, was the first who attempted to supply this omission, which Fairholt has since improved upon in the London Art Journal. This history, though limited, is the first attempt of the kind, and has formed the ground-work of several subsequent imitators in that line. About seventy-two years ago, something was attempted for throwing light upon the subject of carriage-making, by two writers, Wm. Fuller and Robert Anstice. The first named writer had the interests of purchasers, rather than that of manufacturers, in view, and wrote accordingly. He is, therefore, more an instructor of the public at large than of the craft. This circumstance, however, does not forbid its being useful in the coach-maker's library. The second author mentioned, published an essay on wheel-carriages, at Bridgewater, England, in 1790, in which an attempt is made to examine more particularly into the mechanics of wheel-carriages. The nature of his work may be seen in the republication of "A Brief Treatise on the Mechanics of Wheel-Carriages," in the present volume. Previous to these, one or two pamphlets, of small pretensions, without date or responsible names attached—evidently omitted for certain reasons—had made their debut, but are seldom seen now.

In 1813, Richard Lovell Edgeworth, in England, published an essay on wheel-carriages. Joseph Storrs Fry, in 1820, published a work in London, under the same title as Edgeworth's. We give the title page as the best introduction to its contents: "An Essay on the Construction of Wheel-Carriages, as they affect both the Roads and the Horses; with Suggestions relating to the Principles on which Tolls ought to be Imposed, and a few Remarks on the Formation of Roads." This work is more suggestive than instructive, but being now very scarce, is valuable on that account. The next work is a meagre sketch, found in Beckman's "History of Inventions," considered singly, scarcely claiming a place in our library.

Adams' "English Pleasure-Carriages; their Origin, History, Varieties, Materials, Construction, Defects, Improvements and Capabilities," &c., previously alluded to, was evidently designed to push forward his eccentric inventions, as illustrated in his "Equirotals." That these are but *eccentric vagaries* may be inferred, when we tell our readers that he is not a practical carriage-maker, but a theorist, whose fancies are more ideal than real. Very little instruction for the American coach-maker will be found in its pages, still it should be found in our library. We have been better pleased with Mr. Geo. N. Hooper's "Notes on the Construction of Private Carriages in England," and, although a small pamphlet, is the production of a practical mechanic and worthy of study. This gentleman has been introduced to our readers, in these pages.

Our cotemporary in Paris, M. Guillon, has given the world a book of considerable value, made up from the

earlier issues of his *Mercure Universel*, entitled "*Methode de l'Architecte en Voitures*," and which is worthy of a place in the coach-maker's library.

CARRIAGE AND WAGON MAKERS, SEE HERE!

HAVE you, who are reaping the advantages of a publication like ours, ever taken the trouble to recommend it to others? If not, do you feel that you have done your whole duty in this particular? In many cases, its outspoken devotion to the interests of the Craft has saved its friends from being robbed of large sums of money by its timely warnings against the trickeries of unprincipled vagabonds, who prowl about the country peddling their worthless varnishes, patents, and other humbugs, by which they fleece the public. Our aim is to discriminate between the good and bad in persons and things, and while we are ever ready to speak well of the *good, we intend to wage an uncompromising war of extermination against humbugs in every form.* Read what a Wisconsin subscriber says:—"Your timely expose of a varnish-peddler saved me from being badly shaved, although he was backed by a friend, who *now* says he is cheated." And another writes: "A few days ago I was invited to examine the work of a firm built the year before they took your Magazine, and was surprised to see the improvement they had made in style since. If every shop could understand the benefit to be received from its perusal as well as I do, *they would have it if it cost fifty dollars a year instead of three.*" Col. Forney, the able editor of the *Philadelphia Press*, says: "We shall respect the coach-makers more than ever, in future, for having such a Magazine as this." We could give hundreds of testimonies from the press and trade to the worth of our publication, did space permit, in evidence that we have done, so far, more than we originally promised in our Prospectus.

The work, in Three Volumes (bound, or in numbers), can be had. In order to reduce our stock, we will, during 1862, make considerable reduction in the prices originally charged, which will be made known by letter to those enclosing a stamp to pay return postage. Any single number or volume can be supplied. After January, 1863, when the Fifth volume begins, the old prices will be charged.

"A BIG THING!"

SHOULD orders warrant the expense, we intend soon to publish a splendid chart, 22 × 34 inches, of about thirty of the most fashionable drafts of Carriages we have lately given in the New York Coach-maker's Magazine, all drawn to a correct half-inch scale, printed on superior plate-paper, with a handsome border, for framing. A space for the insertion of business cards with the pen, will be reserved. Price, by mail, $1. A deduction of 25 per cent. will be made to all regular subscribers to the Magazine. Send along your orders, so that we may have some guide in printing this edition. We intend to make this chart superior to anything of the kind ever printed in America, and worthy of a place in your office.

EDITORIAL CHIPS AND SHAVINGS.

LICENSED VEHICLES, DRIVERS, &C., IN NEW YORK.—There are, at the present time, 945 licensed hackney-coaches, 554 omnibuses, 225 express wagons, 418 wood and charcoal wagons, 1,036 fish and vegetable wagons, 5,374 carts, 669 dirt-carts, and 278 junk-carts. For the hacks there are 596 drivers, and for the omnibusses 578. On the city railways there are 321 cars, with 540 licensed drivers. To those who think that city railways are calculated to kill-off the hackmen, we will say that, in 1855, there were 619, or 326 less than at the present time. A renewal of all licenses is required to be made the first week in June, annually.

CABS IN PEKIN.—An Englishman in China writes to his friend in England, that the cab, or rather cart-stands in Pekin, are rows of very good little carts, like bird-cages, set on strong wheels, drawn by a horse, ass, or mule, according to circumstances. These stands are at the gates and other public places, and the drivers are *about* as honest and civil, and moderate in charging, as are those in London. Chinamen are said to be very merciful to their beasts: always very attentive to their wants, and never overtasking their strength.

LITERARY NOTICES.

WE have before spoken favorably of *The Atlantic Monthly*, as being a credit to American literature. The March and April numbers, received since our last issue, fully maintain that credit. It gives us pleasure to learn that this work has not suffered from the influences of the rebellion; but that since the beginning of the year more than 10,000 copies have been added to its circulation—a positive evidence of its excellence. The April number contains about twenty articles, some of them extremely interesting: among these Professor Agassiz's Methods of Study in Natural History; American Cizilization; and Jeff. Davis' Message, "conjecturally reported,"—a "big thing," abounding in wit and humor. If you want something *that will keep*, get the Atlantic.

Have you seen the *Vanity Fair*—not the imaginary one spoken of by Bunyan, but the "real, genuine, original" weekly, published in this city by our friend Stephens, of Nassau street? If not, you have missed a treat, which for $3 will—even in war time—in the course of a year save many times that amount in doctors' bills. The most stoical cannot fail in finding a store of witty sayings and a fund of food for laughter—laughter that fattens. Subscribe for and prove it.

ENGLISH IMPROVEMENTS IN CARRIAGES.

APRIL 25, 1861.—IMPROVEMENT IN THE CONSTRUCTION OF SPRINGS.—P. G. Gardiner, of New York, U. S. This consists in combining a dished cup or piece of metal with a series of eccentric steel discs, to insure their effective action by excluding dust and water therefrom. The

aforesaid series of discs are formed of different diameters, and arranged either in single plates or two together, and they are placed over a ferule, holes being made through them for that purpose, so that the ferule acts only upon the discs near the center thereof. The dished cup rests upon the center rim of the largest steel disc, and is formed with a lip, to exclude dust and water from the discs, as before stated. The discs are connected together, and to the dished cup and ferule by a bolt passing through the same, and tightened by a screwed nut. *Patent completed.*

April 26, 1861.—Improvement in carriage axles and boxes.—J. Watkins, of Birmingham. This invention consists (1) in securing the cap from accidental disconnection from the box, by employing a spring pivot working through a hole in the flange of the cap; (2) in employing an external or internal hexagonal head to the cap, making the nuts self-adjusting on Collinge's or other similar axles; (3) in the use of a single or double screw-bolt in the tube of the axle of hexagonal section, either internal or external, secured by a pin passing through a collar, and through the interior bolt; (4) the ends of these axles are formed to receive an internal screw-bolt, the tubular ends being forged with expanding and contracting segments, by which the boxes are protected in case the nuts, collects or screw-bolts should get deranged; (5) in applying friction rollers in the collar of the axle, to relieve the wear upon the leather washer; (6) in using a double reversed spiral groove upon the axle, for the purpose of lubricating; also in constructing lubricating chambers in the axle boxes. These axles may be made either wholly or partially tubular. *Patent completed.*

May 9, 1861.—Improvement in carriages.—C. Lenny, of Croyden, Surrey. This improvement consists in constructing the bodies of carriages wholly or in part of rods or bars of metal, arranged at convenient distances apart, so as to form an open-work body in place of wood, &c., as at present. *Patent completed.*

May 12, 1861.—Improved method of lubricating carriage wheels.—E. Partridge, of (not known.) This invention is simplified, so as to avoid the necessity of calling upon a coach-maker every time the carriage needs oiling. It consists in entering on, in screwing into, or otherwise fixing on, or making in the axle-box a pipe or channel leading into the lubricating chamber, and in closing such pipe or chamber by a screw-plug. *Patent completed.*

May 21, 1861.—Improvements in the construction of carriage wheels.—Y. Parfrey, of London. This invention relates to wheels with india-rubber rings around their peripheries, and consists in using, interiorly of such rings of india-rubber, a strong ring or hoop of inelastic material, preferring iron for the purpose, which will be able by use to be extended in diameter. *Patent completed.*

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

January 14. Improvement in Machines for Filling Wagon Ruts on Highways.—Freedom Monroe, of Romeo, Mich.: I claim the frame-work which stands upon the ground, the posts each side, the bench and wheels on top, the posts and lever, the pulley and cord, the platform, the driver's seat and the posts passing up through the same, the hooks, band and straps round the axletree, in combination.

Improvement in Tire-Upsetting Machines.—Marvin Mead, of Bedford, Mich.: I claim the employment of the concave adjustable clamps, F F, when arranged and used with the arms, B B, the levers, D E, the connecting-rods, *c c*, and rest, G, the clamps being connected by the levers, D, by means of a ball-joint, and the ends being formed so as to lap or joint on the outside of the tire, and for the purpose specified.

Improvement in Spoke Tenon-Augers.—William Morehouse, of Buffalo, N. Y.: I claim, *broadly*, A center-sliding plug, which performs the double function of centering and gauging the varying sizes of tenons.

Second, A graduated center-sliding plug, in combination with a tubular sleeve, a compressible spring, and a surrounding socket, substantially as described.

Third, A tubular sleeve, carrying a centering pin, in combination with a compressible spring, a steady pin, and a surrounding socket, substantially as described.

Fourth, I claim knife blocks and guide blocks, having scolloped inner ends, as described, in combination with a graduated center-sliding plug and tubular sleeve, as described.

Fifth, I claim making the shank, *c*, and steady pin, *f*, in one piece, and confined to the socket, and one end of the spring to abut against.

Improved Mode of Collecting Fares on Street Railway Cars.—[A re-issue. Patented Dec. 17, 1861.]—J. H. Dennis, of Louisville, Ky.: I claim as an improvement in street railroad cars, the combination of the platformless rear, either without a door in front, whereby all persons entering the car being compelled to pass the driver, he can, without inconvenience, act as collector or oversee the deposit of their fares.

21. Improved Splicing Bar for Axles.—J. E. Balderston, of Philadelphia, Pa.: I claim the splicing bar, A, with its journal, *b*, and the strap-bolts, *e e*, the whole being constructed and arranged for application to a broken axle, as and for the purpose set forth.

Improvement in Iron Cutters or Sleighs.—Alfred Burchard, of Sylvan, Mich.: I claim the construction and use of wrought iron or steel braces, supports, bolts and nuts, when used and in combination with the running parts of sleighs or cutters made exclusively of wrought iron or steel, in the manner and form, and for the purposes as described.

Improvement in Carriages.—L. D. Cowles, of Armada, Mich.: I claim, *First*, The combination of the springs, E G, attached to the axle of a two-wheeled carriage by means of a rolling joint, *e f*, with the stationary spring, F, when arranged and operating in the manner set forth.

Second, The combination of the volute springs, H J, with the rolling springs, E G, and stationary spring, F, when arranged in the manner described.

Improvement in Wagon and Carriage Brakes.—C. A. Slack, of Frenchtown, N. Y.: I claim the employment, in combination with the body, J, and bolsters, F G, of the inclined blocks, K, substantially as and for the purpose shown and described.

Improvement in Coach and Furniture Varnish.—W. H. Furness, of Quincy, Ill.: I claim the use of coal oil or kerosene, and yellow wax, as ingredients in the making of coach or furniture varnish, out of the ordinary gums and driers used for this purpose, as set forth.

28. Improvement in Tools for Making Screws.—J. W. Clark, of Springfield, Mass.: I claim the arrangement of the cutters, B C F, opening, *e*, segmental ring, *d*, and movable guide plate, G, in combination with the stock, A, as and for the purpose described.

Improvement in Carriage Gates.—John Ellis, of Detroit, Mich.: I claim the extension, H, cap, K, latch, I, and connecting link, *a*, in combination with the ropes, M M', when these several parts are constructed, arranged and operated as and for the purposes set forth.

Improvement in Plane Stocks.—G. F. Evans, of Norway, Me.: I claim my improved plane, having its body, A, its bearing plate, E, its screws, G G', transversing nuts, H H', and connect-

ing rods, I I, constructed and arranged in relation to each other, and so as to operate together as set forth.

Improved Apparatus for Attaching and Detaching Horses to and from Carriages.—P. W. Hardwick, of Williamsburgh, Ind.: I claim the clamps as constructed, in connection with the plates or their equivalents, in combination with the spring; the whole being constructed, arranged and operated substantially as above set forth.

Improvement in Seats for Wagons and Sleighs.—J. T. Minard, of Danbury, N. H.: I claim the peculiar construction of the adjustable seat, B, in combination with the movable seat, A, to a wagon or sleigh body, so as to form a single or double-seated wagon or sleigh, arranged as and for the purpose set forth.

Improvement in the Running Gear of Wagons.—J. S. Whitehill, of Westchester, Pa.: I claim the adjustable coupling pole, A, held by the king-bolt, D, passing through the rear end of hounds, and circular plate, E, all in combination as described, and for the purpose set forth.

February 4. Improved Machine for Making Carriage Wheels.—C. H. Guard, of Troy, N. Y.: I claim so proportioning and arranging certain of the parts of said machine, that I am enabled, by the auxiliary use of a lathe rest, R, and a chuck, L, to temporarily convert the same into a turning lathe of suitable proportions for shaping wheel hubs, previous to mortising the same in said machine, all substantially as set forth.

Improvement in Apparatus for Shrinking Tires.—L. B. Lathrop, of San Jose, Cal.: I claim a tire-shrinking device composed of a block, A, provided with a concave, E, curved shoulder, *b*, guides, *d d*, movable jaws, B B, and wedges, D D, all combined and operating as shown and described, for the purpose set forth.

11. Improvement in the Running Gear of Carriages.—Nathaniel Adams, of Cornwall, N. Y.: I claim the arrangement of the arm, *c*, perch, *f*, and pivot, *e*, with the independently pivoted axles, A B, as described, for the purpose set forth.

Improvement in Pleasure Wagons.—Isaac Crandal, of Middlefield, N. Y.: I claim forming the body, A, of the vehicle, of two elastic parts, *a a*, attached, one part to the back axle, *c*, and the other by a king-bolt, *b*, to a spring, E, which is fitted or suspended between the back part of the thills, F, the latter being attached permanently to the front axle, G, and all arranged as and for the purpose set forth.

Improvement in Axles for Wheel Vehicles.—J. N. Griffiths, of Brooklyn, N. Y.: I claim the combination with axle, A *a*, of the upper casings, *b b*, lower casing, *c*, strip, *d*, central threaded bolts, *f f*, keys, *g g*, and bands, C D, all constructed, arranged and applied in the manner and for the purposes shown and explained.

Improved Enamel for Leather.—C. W. Held, of Brooklyn, N. Y.: I claim a lacquer for enameling leather, &c., composed of the named ingredients, mixed together in about the proportion set forth.

18. Improvement in Combined House, Bridge, Boat, and Wagon Body.—J. C. Adams, of Baltimore, Md.: I claim the described house, or its equivalent, which can be converted into the uses set forth.

Improvement in Tools for Harness-makers.—E. D. Gould, of Lockport, N. Y.: I claim a channeling tool constructed substantially as described, with the sliding knife or knives, *c d*, and adjustable spring knife, *e*, operating substantially in the manner set forth. I claim also constructing the knife, *c*, with a segmental spring shank in combination with the adjusting screw, *n*, substantially as and for the purposes set forth.

Improved Machine for Raising Carriages.—Edgar Huson, of Ithaca, N. Y.: I claim such a combination of lever loop joints and ratchets for a carriage jack, as that, when the weight is raised, and the lever pressed down against the standard, the slide is supported and upheld without any fastening, by the support of the loop, which falls outside the joint, D.

25. Improvement in the Mode of Securing Wheels to Axles.—Wm. Hamilton, of West Pittsburg, Pa.: I claim the use of a nut for securing wheels to axles, composed of two or more sections of a metallic ring, fitting into a groove in the axle in such manner as to fill the entire circumference of the groove, the sections of the nut being united and held independently of and detached from the pipe box or hub of the wheel, substantially in the manner and for the purpose described.

Improvement in Hollow Augers.—A. B. Hendryx, of Seymour, Conn.: I claim, *First*, The eccentrics, *i*, for adjusting the cutters of a hollow auger, in combination with the screws, *j*, cutter heads, *f*, and dogs, *a*, when arranged to operate substantially as described. *Second*, The combination of the V-shaped scroll, *g*, and conical or taper pins, *e*, with the inner flange, *c*, of the dogs, slotted face plate, B, and wedge nut, D, when arranged to operate substantially as described.

Improved Screw Wrench.—F. Hollen & A. H. Pierce, of Blairsville, Pa.: We claim a burr wrench with two jaws, A A', the inner surfaces of which are provided with ratchet teeth, *b b*, and which are united by a hinge joint, *a*, and forced together by a suitable spring, C, in the manner and for the purpose shown and described.

Improvement in Apparatus for Bending Tires.—Gabriel Farner, of Marion, Pa.: I claim the combination of the middle roller, H, the sliding frame, the guides and central screw, *d*, with the scale, fig. 1, and index bar, *c*, or its equivalent, substantially as specified.

Improvement in the Construction of Wheeled Vehicles.—O. E. Miles, of Aurora, Ill.: I claim the arms, C C, having the wheels, B B, permanently attached to them, and their inner journals fitted into boxes, F, suspended on trunnions, *l*, and their outer journals fitted into boxes, D, placed in frames, E, attached to the bolster, when such parts are used in combination with the rods, *f*, arranged substantially as shown for bracing the frames, E, and with the frame, *m*, in which the trunnions, *l*, are placed, and also with the levers, *r r*, arranged substantially as shown, for securing the trunnions, *l*, on frame, *m*, as and for the purpose set forth.

Improvement in Self-acting Brakes for Wheel Carriages. Daniel Sager, of Albany, N. Y.: I claim the combination of the curved links, C C, with the pole, A, and levers, D, as shown and described; the arrangement of the levers, D D, to slide longitudinally as well as turn circularly upon the axis pin, as shown and described.

Improvement in Springs for Carriages, Wagons, &c.—G. W. La Baw (assignor to himself and P. F. Campbell), of Jersey City, N. J.: I claim, *First*, The toggle-joint bars, *b b*, in combination with the boxes, *c c*, containing the springs of india-rubber, as and for the purposes specified. *Second*, I claim the cushions or buffers, *f f*, of india-rubber, applied to take the toggle-joint bars, *b b*, in the manner and for the purposes set forth.

Improvement in Apparatus for Holding Wagon Wheels while Loading.—W. T. Pogue, of Vienna, Ind., (assignor to Geo. Hely, of Richmond, Ind.): I claim the arrangement of the rods, B E F, swivel, C, clevises, D D D D, in combination with the wheels, A A, the better to effect the purpose described, the whole being constructed substantially as described.

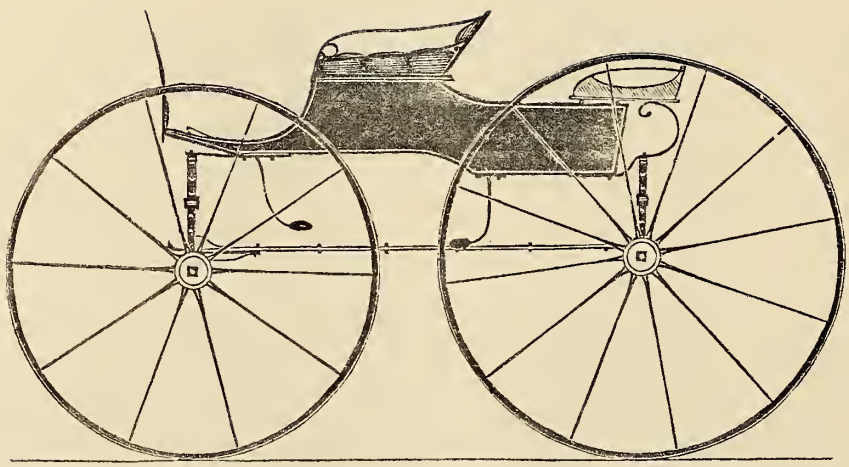
Improvement in Shifting Joint Hinge, Joint or Coupling Shafts of Wagons.—E. W. Seymour of Centre Lisle, New York (assignor to himself and G. W. Gregory, of Binghamton, N. Y.): I claim a shifting hinge, joint or coupling, constructed in the following manner, to wit—The combination of the barrel, A, with the pivot, C, and slot, D, with the arm, H, and its shoulder, G, as and for the purposes described.

March 4. Improvement in Machines for Turning and Mortising Hubs.—E. M. Scott, of Auburn, N. Y.: I claim the pivoted bar, I, provided with the parallel guides, *f f*, and sliding heads, J N, the heads being provided, one with the cutter, M, and the other with the chisel, O, and augers, *j*, and the head, J, operated by a screw, K, and connected with the head, N, by a bar, T, when required; all being arranged and combined with a turning lathe, to operate as and for the purpose set forth.

ROCKAWAY WITH TURNOVER SEAT.— ½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

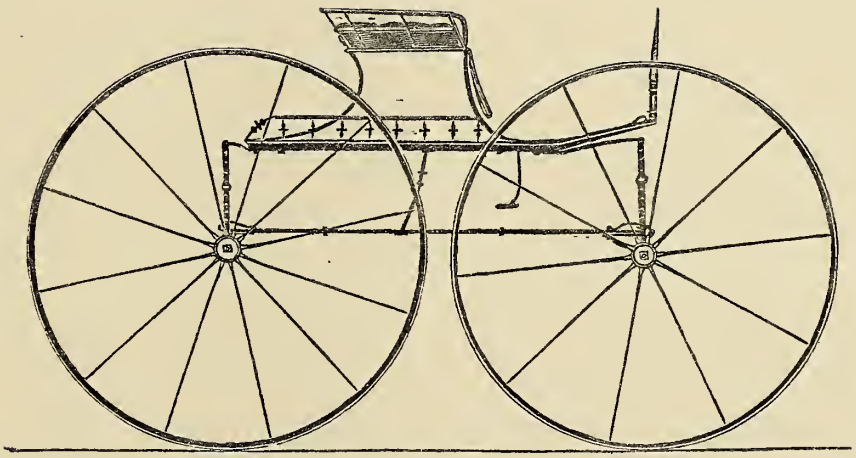
Explained on page 161.



PHAETON BUGGY WITH FOLDING SEAT.—½ IN SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 161.



SKELETON BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 161.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, JULY, 1862. No. 10.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page* 142.)

"I know nothing of the distance," I finally replied; "but I have a limited knowledge of the place by reputation. A card I find in my memorandum-book assists my memory. I have some acquaintances living in Perchville."

"Indeed!" exclaimed my fair companion, in a tone betraying a wish that I should more clearly explain myself. At the same moment removing the covering which had hitherto entirely concealed her face, a countenance was revealed which spoke commendably of its owner, and, from some lurking familiarity, fixed a singularly strange impression on my mind, which at first I could not account for.

"The circumstances under which I and my Perchville friends became acquainted," I continued, "and the incidents immediately connected, were of all things the least pleasing or desirable, being attended with a greater degree of mortality than I would again wish to witness."

"If the narrative," continued my fair friend, "be not too painful, I would be obliged if you would relate it, as some persons connected therewith, you say, live in Perchville."

I then proceeded to narrate in detail the incidents connected with the wreck of the steamer on the Ohio river, as described in the earlier part of this narrative.

"How very strange!" she exclaimed, after I had concluded;—"two of my cousins were passengers by the same boat, the wreck of which they have described to me by letter, written after they had safely arrived home."

"Am I to infer that your cousins live in Perchville?" I asked.

"Yes, sir," she briefly answered.

"Are their names Clifton?" I continued.

"Yes, sir,—Henry and Annie."

"Just as I anticipated," I remarked; "your cousins are the identical acquaintances of whom I spoke, as living in Perchville."

"Your name if you please, sir?" she inquiringly said, looking earnestly into my face.

"My name is Cruff," I briefly informed her.

"Cruff?" reiterated my companion—"Halford Cruff?"

"The same, madam," I replied.

"You saved the life of my cousin Harry," said she, offering her hand, while a pearly tear glistened on her cheek. "My cousins could scarcely write of any thing else, so indebted to you were they for your promptness in rescuing them from what must otherwise have proved a watery grave."

After she had become composed I ventured to inquire her name, and was informed that it was Maria Wilford, and that her parents were dead, and she had lived with John Clifton, her uncle, in Perchville, from the time of her mother's demise to the present, with the exception of the last year, which she had spent among relatives near Toledo, Ohio, and from which visit she was just returning home.

When Maria Wilford became aware that I had no determined destination, but was merely drifting about at the dictate of fancy, she politely proposed that I should shape my journey *via* Perchville, in the way of paying a visit to her uncle's family; to which proposition I readily agreed; not, however, without an increased pulsation of the heart, in the pleasurable anticipation of meeting my young friends, Henry Clifton and his sister Annie.

From this time forward we conversed freely on the various topics of the day, occasionally offering a passing remark on some object of interest or curiosity that chanced to present itself on the way, thus making the journey as pleasant as one could desire. The line of our journey now diverged abruptly from the Old National Road in a southerly direction, bearing us directly toward Perchville; in which course two days would bring us to our destination.

We were now jostled and jolted unmercifully along the bluffs and hills, bottoms and causeways of the various creeks and rivulets tributary to the White river, without notice or preliminary warning of any kind.

The scenery here seemed to differ materially from any I had previously seen in the State,—sometimes bordering on the beautiful, and at other times assuming a different aspect. At one hour we were passing over a vast rolling

plateau of farming land, under what appeared a thorough state of cultivation. Fine residences surrounded by ornamental trees, valued for their summer shade, some evergreen, others with long bare arms stretched out, and looking down on the dwellings and snow-carpeted lawns like so many watchful guardians. Back of these, great barns, stables, sheds and other convenient buildings claimed attention, forming in the whole a very respectable country village; then suddenly we would immerge into a dismal stretch of gloomy forest, situated on an expanse of low, muddy swamp-land, extending far beyond the scope of natural vision. Those are dismal forests. Very rarely are such found in the New England States.

The ground, as previously mentioned, is low, and for a great part of the year, and especially the wet season, thoroughly saturated with water, which by travel form one of the permanent institutions of the country—mud.

To insure a passage to travelers through the land, and to facilitate the transportation of merchandise, avoiding the numerous mirings-down and pryings-out to which the "rolling property" of the country must, otherwise, be inevitably doomed, the efficient roadmasters, backed by an enterprising constituency, have made ample (!) provision. The manner in which this end is effected along those *flats* where turnpikes are not in use is this: a kind of bridge is built of round logs, laid cross-wise the road, in many places receiving the *sobriquet* of corduroy, and are stretched out for miles along these dismal swamps. These bridges answer the purpose for which they were intended, perhaps; but, candidly, they afford no great amount of comfort to the traveler!

We were fast nearing our destination, the knowledge of which brought the stimulating thought of soon seeing those who occupy the small niche in our hearts dedicated to dearest friends. As Perchville was in good repute for sociability, I could not avoid the thought of the sleigh-rides, amusements and festivities which I should share with my friends, and the many acquaintances likely to be made, while I might remain in the place.

The morning, one week previous to the commencement of holidays, had dawned clear and cold, and, just as the sun had shed his first rays to gladden the face of nature and blue-nosed humanity, we were reined up in front of a door, over which hung the sign, "Post-Office." The mail-bags were hurled on to the platform, the whip was cracked, and we again rattled down the street toward the hotel, which was designated by the huge post and sign, on which was inscribed "Perchville," occupying a conspicuous place in the foreground; while a number of lighted cigars,—the fumes of which curled up briskly on the sharp morning air,—betokened it a place of considerable note. While the passengers were alighting my baggage was removed, per order, to the hotel, where it would be convenient to reship; which I expected to do in a few days, for the purpose of pursuing my aberrant flight further west.

Miss Wilford had given the coachman directions to her uncle's residence, and we were soon under way toward the suburbs of the village, where, after crossing a beautiful common, we drew up in front of the gate. The dwelling was built in modern style, surrounded by all the ornaments and conveniences of a modern house.

"This is the home of my uncle, and the one to which I have invited you. Alight, Mr. Cruff," said Maria Wilford gaily, as the stage stopped, and she prepared to descend.

I assisted her to the ground, and the stage was rattling away again, when our attention was directed to Harry Clifton, who had recognized his cousin Maria, and was hastening to receive her. His attention was so entirely absorbed in his cousin that he failed to notice, much less to recognize, me. After the first outbreak of joy had passed, seeing that I was not recognized, Maria turned toward me and said, "Mr. Cruff, I present my cousin, Harry Clifton." The astonishment manifest by Harry on hearing the mention of my name was absolutely unprecedented. He seemed totally lost in reflection, as if to recall and live over again the circumstances under which we first became acquainted. As he stood thus absorbed in profound thought, I had time to observe and admire the physical and mental powers with which he was endowed; the high, intellectual forehead, the eloquently moulded mouth, and the intelligent brown eyes that combined to compose the genius that Harry was.

He now clasped my hand warmly, and invited me to the house, where the family waited to welcome their fair relative home again. I was recognized immediately on entering the sitting-room by Annie, whose courtesy was well adapted to make the most stoical enjoy and appreciate the same. The seniors, Mr. and Mrs. Clifton, were now introduced, and greeted me very cordially, asking me many questions concerning the wreck on the Ohio, and thanking me in unmeasured terms for the part I had taken in saving the lives of their children. I endeavored to remind them that I merited no honor or praise for the part I had performed,—that I had done no more than is, in similar circumstances, the duty of all.

"Annie," said the old lady, "you will now repair to the kitchen and attend the preparation of breakfast for Maria and our friend Mr. Cruff." Annie stood beside her cousin entirely engrossed in the narration of the incidents connected with the journey, embracing every sentence with undoubted pleasure, while a silvery laugh at intervals escaped her lips, indicative of the delight she experienced in the scenes Maria painted so beautifully and eloquently before her enraptured mental vision. But, when the words which her mother had addressed to her caught her ear, she hastily planted a kiss on the cheek of Maria, and, with fairy-like step, glided from the room, more like a spirit of the air than a human being.

In a few minutes breakfast was announced, when I and Maria repaired hither, accompanied by Annie, who served at table, while we partook of its bountiful and delicious supplies.

After breakfast was over, notwithstanding the rigorous atmosphere that prevailed out-door, Harry proposed a walk of a mile or two through the village and adjacent country, to which I readily acceded, and we at once set out. A splendid country it proved to be. Everything gave evidence of its unsurpassed powers of production and the superior agricultural skill of its enterprising farmers. The village was situated on a range of almost perpendicular bluffs, of considerable height, at the base of which a small stream meandered its way. Its course was marked by its icy surface amid banks of snow, shining like a plate of silver in the distance. Numbers of adventurous youths could be seen darting with the speed of the arrow over the smooth surface, on skates gleaming like polished blades in the rays of the wintry sun.

The village, containing, perhaps, one thousand inhabitants, was neatly and compactly built, with wide, commo-

dious streets, set with beautiful trees, adding at the same time luxury and beauty. On the east and south a vast level plain ran out as far as the eye could reach, interrupted only by the many farm-houses interspersed at intervals.

As we proceeded onward, along the main street, I observed, in front of a very handsome two-story building, the sign of a carriage-shop, painted in black letters on a white ground, bearing the name of "John Hobbs & Son." I instantly conceived the idea of procuring a berth in the shop, if possible, and, without further thought in the matter, concluded to try. I knew that my circumstances would not justify me to "loaf" any considerable length of time, so I resolved to obey the ancient ediet and subsist "by the sweat of the brow," provided, however, that I could get a job. Another incentive to this conclusion was contained in the fact that I could not entertain for a moment the thought of parting with my friends at Perchville, and especially with Annie Clifton, whom I had learned to love, though I had never confessed to any animate being, not even to myself, that I loved her,—yet I felt a secret, irresistible response to the serious questionings of my heart that such was truly the case. However, let this be as it may, we will pass it for the present, hoping to have a future privilege of dwelling more at length on so delicate a subject.

After informing Harry Clifton of my determination, we proceeded directly to the shop, when, being introduced to the "boss" by Harry, I applied for a "job," which, after a consultation held by the "firm," I was politely informed I could have. So I found myself privileged with a good shop and bench, and the possessor of a pleasant job, which promised to last through the winter. I next called at the hotel, where I procured boarding at reasonable figures, which ended the preliminary arrangements, and I was ready to "set-in" the next morning. After seeing that my baggage was safe and uninjured, Harry and I walked toward his home.

During the course of the following evening Annie Clifton and her cousin Maria played and sang sweetly. The old folks sat in their easy-chairs and looked on with parental affection and approving smiles. Harry conversed eloquently upon the various topics of the day—not, however, neglecting to occasionally pass an eulogistic compliment on his sister and cousin's performances at the piano, or in vocal melody.

After the singing was over, various books and authors, which a large table was amply supplied with, were discussed by the company, and eulogized or condemned according to the opinion held. Though always interesting, and never insipid, Annie at no time seemed so profoundly intellectual and so highly delighted as when ascending with the sublime flights of poetry and studying the richest and rarest productions of the bards.

The next morning found me early at the shop. After having removed my small but well-supplied tool-chest from the hotel to the shop of Hobbs & Son, and having arranged the tools in order on the bench, I commenced my labor by getting out stuff for a light rockaway, both the body and gearing of which fell to my lot to construct. Hobbs & Son seemed extremely polite and agreeable, often visiting my bench and chatting through the course of a half hour, as I continued diligently to apply chisel, saw or plane to the wood before me.

The holidays were approaching, and a grand festival was "a matter of course" among the young people and fun-loving portion of the community. The landlord of the Perchville hotel very generously offered his commodious house for the purpose, and spared no pains in preparing whatever would contribute toward making the affair agreeable and brilliant.

Christmas eve, the proposed time for the party, arrived, and with it came all the fashionable pleasure-seekers of the vicinity. I had received a note of invitation, and, dressing in my best, at the appointed hour I entered the brilliantly lighted place. The long, double parlor resounded with the merry laugh of mirthful girls as they promenaded back and forth the length of the apartment, while the gentlemen praised the magnificence of the affair and eulogized the good taste of the landlord. As the evening advanced Harry Clifton arrived, accompanied by his sister and cousin. They were especially noticed and welcomed as they passed to the farther end of the parlor.

Annie Clifton seemed the center of attraction during the remainder of the party. Many eyes were involuntarily turned toward her as she glided through the gay crowd, and many a look of envy was also manifest as her musical voice rang out in merry laughter or indulged in gay and humorous remarks. As the company was still gathering, I approached Annie Clifton as she conversed with a group of ladies and gentlemen assembled in a distant part of the room, and, after a few common-place remarks, offered her my arm for the promenade. She accepted, and as we turned away my eyes encountered a tall, well-dressed youth, with dark hair and eyes and fine features, sporting a luxurious growth of beard in the shape of mustache and whiskers, and whose countenance seemed to glare upon me with dire displeasure. His eyes flashed with extreme malignity, and I thought—perhaps imagined—he murmured something reproachful as I passed him. His looks haunted my mind, creating a kind of undesirable presentiment. I at length ventured to interrogate Annie upon the subject, as follows:

"Are you acquainted with the gentleman in blue cloth, standing in the group when I solicited your company for the promenade?"

"Oh, yes!" exclaimed she, "that is young Herrington. Do you wish an introduction?"

"Not at present, if you please; though, in truth, I anticipate an introduction soon, if I may judge by the frown he assumed when you took my arm, and the malicious glances he continually bestows upon me since," I remarked thoughtfully.

Annie dropped her head a moment thoughtfully, then raising her eyes to mine, with apparent concern, said, "I fear he is offended; and he is branded with being a desperate character when once aroused, so you must keep a vigilant eye to your own welfare."

At this moment a lively dancing tune was discoursed by the orchestra, and the promenaders were soon formed into cotillion sets, and "tripping it on the light, fantastic toe" in high glee. I had engaged Annie Clifton for the first dance. During intervals of the figure I observed Herrington to be in the same set with myself. A dark scowl monopolized his features continually, reflecting the virulence of the wicked passion within. After the reel was finished a hand was laid on my shoulder, and turning I beheld Harry Clifton at my side, who said, "I have understood that young Herrington meditates revenge on

you,—claiming that you have passed an insult on him in the manner you have conducted yourself this evening."

"What is the nature of the charges against me?" I said.

"He has no charges," answered Harry; "the fact of it is, Annie, my sister, has on previous occasions been thoughtless enough to grant his temporary addresses, and now, fearing a rival, he wishes to monopolize her company." I assured him there should be no disturbance during the party if any sacrifice, save honor, would prevent it.

And to his cautionary advice I promised to watch Herrington's movements more closely during the remainder of the evening.

Supper was announced, and I led Annie Clifton to the table. Good feeling and gaiety equally characterized both the table and dance, each individual contributing to enhance, to the greatest extent, the enjoyment of others. The sinister look of Herrington, though greatly increased in virulence, was again cast upon me while at table, and, judging from the brutish glare of his restless eyes, he had undoubtedly been imbibing at the bowl of Bacchus.

It was considerably past the noon of night when I adjusted the fur-lined cloak around the graceful shoulders of Annie Clifton and left the gay throng to escort her home. As we passed down the broad steps and through the dimly lighted hall we were astonished to hear a wrangle prevailing at the outer door. Having no knowledge of the cause of the excitement, save a slight apprehension I entertained of Herrington, we continued our way to the door, when, by the confusion that reigned and the compactness of the crowd, we were compelled to stop. But we were not held long in suspense, for as soon as I revealed myself to the crowd a person darted away, and directly reappeared, accompanied by Herrington, who, with demoniac phrensy and hideous yells, interspersed with sundry imprecations, rushed through the crowd toward where I stood. A glittering blade which he grasped in his hand, gleaming under the rays of the street lamp, caused the spectators to give way before him, like dry trees before the tempest. I endeavored to compose Annie by assuring her that no danger existed, and to prepare myself for defensive operations should he advance upon me. Just as Herrington mounted the broad stone step upon which I stood, Harry bounded by me with the agility of a panther, and, confronting the assailant, he planted a blow under his ear that instantly prostrated his drunken, stupefied carcass on the pavement. Herrington was immediately taken into the custody of a peace officer, while I and Annie Clifton, accompanied by Harry and his cousin Maria, passed from the scene of excitement and walked toward the residence of John Clifton.

(*To be continued.*)

For the New York Coach-maker's Magazine.

POWER OF AXLES IN OVERCOMING OBSTRUCTIONS.

FRIEND E. M. STRATTON:—Yours of the 7th, *via* Dorchester, my former residence, came to hand on the 11th. You are quite *excusable* in addressing me, for we are all directed to address one Father, and surely brethren may hold correspondence concerning that which is for the public or private good. I am happy in that you found in my communication to the Boston *Cultivator*, on axles, &c., anything worthy of reprint. [See page 90, Vol. III.] I sought to present facts and deductions as they were evident to my mind. You have sought to send them out to other minds through your Magazine, which I think must be a very useful work for the builders of light and heavy carriages of all kinds, and those who own and use them; for it is a fact that our wheelwrights and smiths are not all perfect in the knowledge of the construction of wheels and the structure and *set of axles*, although a great progress has been made.

You ask my opinion of the question submitted: "There are some about here who think that a large axle will run over an obstruction with less power than a small one." In reply, I would say that the question is rather indefinite. [It was just as we received it.] Large and small are but relative terms, as a large mouse, a small elephant. To my mind it is obvious that a large axle, with its box, hub and bands, *must be heavier* than a small axle, box, hub and bands, *in running over an obstruction* which is but an inclined plane more or less obtuse. These each have to be lifted to the height of the obstruction by the power applied, whether horizontal, vertical, or intermediate. Weight requires weight, and more to lift two pounds than one.

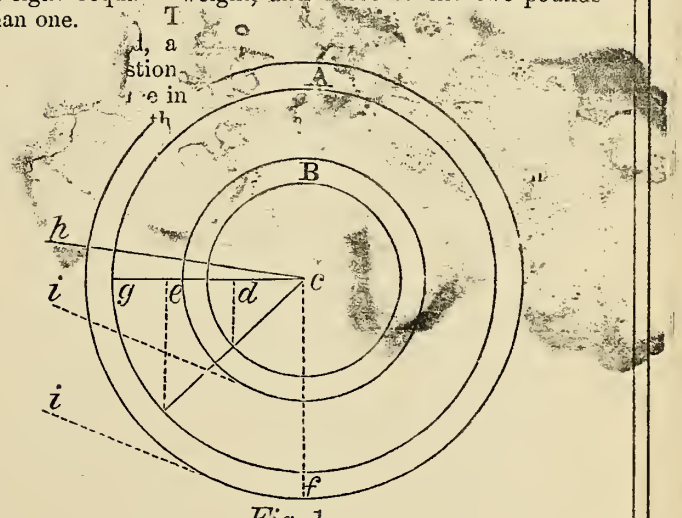


Fig. 1.

[In the diagram, A represents the large box of a 2-inch axle; B, the smaller one for a 1-inch axle—both drawn full size; *c*, axle center of gravity or motion; *c* to *d*, the over-hang of the small axle; *c* to *e*, the over-hang of the larger one; *c* to *f*, the center support of gravity; *c* to *g*, the line of contact; *c* to *h*, the line of power; *i*, *i*, inclined *imaginary* planes passed through by the bottoms of the two axles in overcoming obstructions.]

The weight of the axle, &c., lies on that point in the box which would be intersected by a perpendicular line let fall from the center of the axle to the horizontal plane below—if on an inclined plane, the center of gravity is not supported, and it runs back—to the center of the axle. The power is applied horizontally or obliquely, and the side of the axle is brought in contact with the box, front or back, as the *movement* may be, the box sliding under the axle. This rubbing of surfaces falling into one another is called friction, to prevent which we use lubricators. A two-inch axle has six inches of rubbing surface; to a one-inch axle there is three inches in a revolution. In the large axle, the power applied at its center brings

the side of the axle in contact with the box at a greater distance from that center, and the center of gravity in the axle has more unsupported overhang than in the smaller one. Can *more* weight and *more* friction require *less* power to move it? I speak as to wise men: judge ye what I say.

I know of no advantage to be gained by the enlargement of axles beyond the minimum size required to meet the wear and resist the concussion to which they are subjected. The diagram may illustrate my ideas; take it for what it is worth. Here our people *bow* to the calf, which brings in the *gold* for the boots and shoes they send out. They are men of *understanding*, and know the worth of the *sole*, being *pedestrians*. I remain the old plow-maker. Yours fraternally,

JOHN MEARS.

South Abington, Mass., 1862.

FRIEND STRATTON:—It is with pleasure that I give my opinion, and reason for the same, upon the question which your correspondent propounds, inasmuch as there seems to be a great diversity of opinion among the craft upon the subject, which is of such vital importance to the whole community that it should be settled. [illegible] only in *theory*, but *practice also*. I had supp[illegible] the theory was more generally understood than [illegible] on inquiry among some of the craft. That [illegible] was not more generally reduced to practice, I had attributed to its conflict with the interest of men who were engaged in manufac[illegible] parts for wagons which in their time were really useful improvements. It is a very common and worthy trait in the human mind to be very tenacious of old and tried improvements; but this worthy trait, like all other good things, can be carried so far that it degenerates into a positive evil.

Your correspondent says: "There are some about here who think that a large axle will run over an obstruction with less power than a small one. I would like to have your opinion on this subject."

I think the diversity of opinion on the subject originates from our not understanding the true nature of the power gained by the wheel, also by our not understanding the exact operation by which the power is gained. A wagon wheel is simply and purely a lever, by which a wagon is propelled, yet it has one peculiarity and advantage over other levers. It is a rule laid down that whatever we gain in leverage we must lose in motion or distance; but in *this* arrangement of the lever we find an exception to the general rule. The motion or distance is the object that is wanted to be gained, therefore we can apply as much leverage as we please without having any corresponding loss by increased motion or distance.

A lever has three distinct portions necessary to make a lever, any one of which being gone, it ceases to be a lever. *First*, the weight to be moved; *second*, the arm or lever with which we move the weight; *third*, the fulcrum on which we poise the lever and weight. The positions of the weight, the lever and fulcrum, are changed into innumerable places in order to answer the purpose for which they are to be used, but the three distinct parts must be united in some way, or all are gone. The different degrees of power given to a lever depends entirely upon the relative distance that the power is applied to the arm or lever, compared with the distance of the weight to be raised from the fulcrum. That the principle may be perfectly understood, we will illustrate it by the common lever scales used for determining the weight of things. In the lever scales the fulcrum is the point between the weight to be weighed and the beam or lever on which the weight and lever are balanced. The distance between the weight to be raised and the fulcrum are never changed—that is, the poise, that, when placed on the arm, is the power that raises the weight, is never changed in heft—but according to the distance from the fulcrum, where it is placed on the arm, determines the weight that the poise can raise. On an arm—it is called beam in scales—of eighteen inches or two feet, the power of this same poise can be increased or diminished nine hundred fold. To mark the amount of power that the poise exercises on the weight, there are notches in the arm (beam), equal distances apart, from the end of the arm up to the fulcrum. The notch at the further end from the fulcrum denotes 50 pounds power that the poise will raise on the weight; the next one nearer denotes $49\frac{15}{16}$ pounds, and so on, decreasing power in the same proportion until the poise arrives at the notch nearest to the fulcrum, and there it exercises a power of $\frac{1}{16}$ of a pound. Here let me say that the laws which govern leverage are uniform and mathematically correct under all circumstances; therefore it reduces the question as to the different-sized axles to simply this: Which has the most leverage? It is generally conceded that a small axle creates less friction than a large one; my individual opinion is that there is no perceptible difference, but, if there is a difference in favor of the small one, it will not weaken my conclusions in the least, but, on the contrary, strengthen them.

In order to measure the exact leverage,* we shall have to introduce the engraving Fig. 2, as a wagon wheel; the

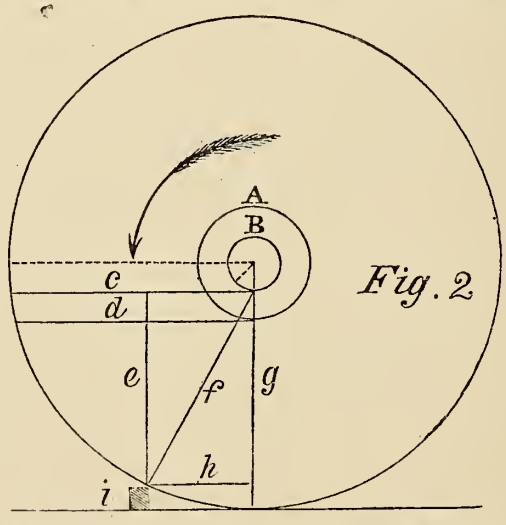


Fig. 2

circles A and B representing two different-sized axles, *i* being an obstacle which the wheel is required to overcome. The rim of the wheel always acts as a fulcrum,

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* On page 107 of this volume, in computing the leverage that a wheel would have, two imaginary lines, which were termed the weight and lever lines, were introduced, with considerable anxiety on the part of the writer as to the correctness of the principle laid down. A more thorough investigation of the subject has convinced him that his lines then laid down were *perfectly correct, and may be relied upon under all circumstances to give a positive and correct statement* as to the amount of leverage that the wheel has. The lines are in Fig. 2, the diagram now given. The *e* line, which is drawn per-

by resting on the obstacle when it passes over the same. The power is communicated to the lever by the axle of the wagon drawn by the team against the box of the wheel. To ascertain precisely the part of the box where the axle is drawn, it is necessary to find the length of the lever-power. There are two powers acting at right angles to each other: one, the draught, acting horizontally; the other, the weight, which is the *h* line, and which always acts perpendicularly. I have marked down the two lines of draught, *c* and *d*; the third, which is the dotted line, is the stumbling-block over which advocates of large axles have fallen. They suppose the draught is from the center of the axle, communicated to the side of the box where the dotted line crosses the box, therefore the lever is lengthened just as much by the large axle as the small one. There are various ways of showing that this opinion is incorrect. One is, that if the draught was from the side of the axle communicated to the box, in the direction of the dotted line, then that side of the axle would be worn away by the friction, instead of the bottom. Old axles always show the wear on the under side of the axle, and never any more on the front than the back side. This would indicate that the power communicated by the axle to the box was on the under side, where the friction shows itself to have been. But there are other proofs equally positive. To draw a wagon, the average amount of draught is less than $\frac{1}{3}$ part of the weight of the load, but we will call it $\frac{1}{3}$ for the sake of a *data* to calculate from. Let us suppose the diagram represents a wheel with 1000 pounds weight resting on the axle B. In such a case we know the 1000 pounds weight would rest perpendicularly on the box, in the line *c*. Let us put a draught on the dotted line of 1000 pounds, and keep the wheel from turning. Now, with 1000 pounds drawing at right angles, where will the weight rest on the box of the wheel? It cannot rest perpendicularly on the line *c*, because there is an equal power drawing at a right angle, in the direction of the dotted line, to that side of the box; but any one will see at once that power will be communicated to the box at a place one half way between the dotted line and the perpendicular line, *g*, at a place indicated by the dotted line from the center of the axle B to the box of the wheel. In the example, Fig. 2, by measuring the lever-line, *e*, and the weight-line, *h*, it will be observed that the lever-line, *e*, is twice as long as the weight-line, *h*, therefore the leverage is as two to one of the weight; consequently it would require only 500 pounds of draught on the axle, *h*, to move 1000 pounds over the obstacle, *i*. The draught of 500 pounds would draw the axle so that it would rest on the box quarter way between the draught-line, *c*, and the gravity-line, *g*, provided the wheel does not turn around. The wheel *will* turn around in the direction of the arrow, and, in turning, all the friction that the weight of the load and the draught creates at the box is communicated to the axle, and the rotary motion, by the friction, has a tendency to draw the axle back to the perpendicular gravity-line, as is indicated by the wear of an old axle, which always appears to be worn on the bottom equally on each side of the gravity-line, *g*. If the last supposition is correct—that the friction of the axle carries the bearing on to the box back to the gravity-line—it will not change the amount of leverage in the least from the engraved illustration, and therefore I shall adopt it to show the difference in the leverage of the two axles. The wrought iron axle of 2 inches in diameter will be fully equal in strength to the $3\frac{3}{4}$ inches thimble skein, and it would have $\frac{1}{3}$ of an inch more leverage. An inch leverage on a 4-foot wheel will have an average capability of moving 139 pounds, with a 2-inch axle, of a load that weighed 32 cwt. With the same load, the loss of $\frac{1}{3}$ inch leverage—which the $3\frac{3}{4}$-inch axle would have—would make its capability 122 pounds less than the 2-inch axle would possess. Either the 2-inch or the $3\frac{3}{4}$-inch axle, properly constructed, would sustain a load of 52 cwt., counting the heft of the wagon with the load, as I have with the 32 cwt. load. In ordinary use, wagons of this description are loaded with three different class loads: 1st, the wagon alone. Thimbled with iron axles, will weigh 12 cwt.; 2d, the [illegible] load, 32 cwt.; 3d, the wagon with a full [illegible] according to the state of the roads over which the load is drawn. The last two loads are calculated to require the same draught of horses, that being about the extent of draught that a team of horses are capable of making for any considerable length of time. Then we have an average of 122 pounds that the 2-inch axle will move more than the $3\frac{3}{4}$-inch axle with the same draught of 400 pounds.

This would be a great odds in the value of the two wagons for business in favor of the 2-inch axle—full as much as five good iron-axle wagons are worth. But there is one thing yet to be recorded in favor of the $3\frac{3}{4}$-inch axle. A thimble-skein wagon will not weigh as much as a 2-inch iron-axle wagon by about 98 pounds. Take 98 from 122, and we have only 24 pounds in favor of the small axle. This 24 pounds weight of the load is equal to 3 pounds draught, and the draught has been calculated in a former number of this Magazine to be worth, before the wagon can be worn out, $33\frac{75}{100}$ dollars per pound, which makes the sum total $101\frac{25}{100}$ dollars that a 2-inch iron axle is worth more than a $3\frac{3}{4}$-inch thimble-skein.

It will seem almost incredible that the $\frac{1}{8}$ of an inch leverage will be worth so much to a wagon, but I have endeavored to make the result as nearly a mathematical one as the case would admit, and in every case where there has been a small fraction not put down, it has been given in favor of the large axle, so that by strict computation the differenee in value between the two axles would be still larger.

The wrought iron axle has been generally supposed to run easier than wooden axles, yet the advocates for the latter have supposed that the additional weight that the wrought iron one would have would counterbalance the gain that it would have by its superiority in running, which they conceded it to have. A new invention has been introduced for axles and tires, called "homogeneous steel" (an English patent, I believe), which is said, by those whom we deem most competent to judge, to have twice the strength of iron, and full its equal in toughness. If such is the fact—and I believe it is—the small axles

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pendicular from the place where the wheel rests on the obstacle, *i*, to where it intersects either the *c* or *d* draught-lines, compared with the *h* line, which is drawn at a right angle from the same obstacle, *i*, to where the *h* line intersects a perpendicular line from the center of the axle to the bottom of the wheel, which is the *g* line in the figure. The *c* and *d* are the draught or traction lines, *e* is the lever, *h* is the weight, and *g* is the gravity-line. Compare the *e* with the length of the *h* line, and you have the amount of leverage gained. It will be observed in this example that the lever will be longer where it intersects the *c* than the *d* line, which gives the small axle the most leverage.

will enter into competition with large ones with not only an increased leverage, but a diminution of heft, which will place the question beyond the shadow of a doubt in favor of a small axle, and to an amount in value that will surprise those who have not investigated the subject.

An objection came into my mind, and probably will into that of others, against this mode of calculating power. It occurred to my mind that if a wheel was simply and purely a lever, that increasing the size of the wheel to the large axles would make the leverage equal; but on further reflection I found that there was a point in the size of wheels that could not be exceeded and gain leverage, on account of the manner we were obliged to hitch the team to the load, and that point could be attained by a wheel with a small axle as well as a large one, which would leave it with all the gain of leverage by its reduced size.

I [illegible] any other conclusion than that the purchaser of a [illegible] kein axled wagon, after he has paid for it or [illegible] he wears it out, pay for it again, [illegible] compared with the work that a good [illegible] keeping wagon will do with the same power [illegible] I can acco[illegible]

As the su[illegible]ish varnish has in no other [illegible] of others who are be[illegible] had [illegible] least expe[illegible] I am, I hope that [illegible] talk [illegible] ost, and, [illegible] it deserves, and [illegible] by all [illegible] "Engl. pass [illegible] a sp[illegible] the [illegible] workm[illegible] have seen [illegible] [illegible] way or the [illegible] end,

For [illegible]

USE OF [illegible] neces[illegible]

[illegible] Coach-maker's Magazine.

BY S. E[illegible]

THE R[illegible]OGRESS OF CARRIAGE-MAKING IN ENGLAND.

(Continued from page 144.)

IMPROVEMENTS in wheeled carriages, as will be seen in our last article, had made great strides in England, at the close of the eighteenth century; but we shall presently show that during the next thirty years (between 1774 and 1805) their perfection was wonderfully manifest. The "straiked-tire," (that was fitted on and nailed to the felloes in straiks, the joints meeting in the center of a felloe), of primitive origin, was giving place to others of better form, so that in 1800 all tires were either straiked, hooped or patent-rimmed. We are told that, in constant use, the first "wears out in twelve months; the hooped-rimmed wheel in fifteen months; the patent-rimmed wheel in eighteen months;" provided, they ran "five miles per day in town, and eight in the country, which is the shortest time they may be expected to last."

About this period a system of hiring carriages by the year appears to have sprung up. This, at first, was principally confined to coaches and chariots, built purposely for the occupier, and finished to suit his taste, in the same manner as if they were to be purchased; and generally engaged for four years, the time they were expected to last. These were repaired (except in case of accident) and kept by the builder in wheels, who also supplied a suitable harness. Phætons, curricles, or chaises, when built for hire, were, if only used six months in the summer, charged for as if for the entire year, as the carriage, being unsalable in the winter, would be likely to lay idle the remaining half-year. In fixing the tariff of charges, the value of the vehicle let was taken into consideration, and to that added the probable subsequent expense in repairs during the period for which an engagement was made. To get at the yearly value for the hire (the first costs of the carriage and its subsequent repairs being summed up) was to divide the amount by one more number than the years in use. One year's use was supposed to be the worth of the carriage to the builder, when returned to him at the expiration of the engagement, and the others paid for the carriage while being used. To illustrate: when the carriage was used for four years, the costs were divided by five; if for three years by four, and so on for a longer or shorter period. These contracts bound "the executors, administrators, or assignees" of the parties, except provision was made to the contrary, by special contracts in writing, and in no case could the coach-maker demand the return of the carriage where an advanced tax had been paid, the law giving to the occupier *a provisionary* "fee simple" for the unexpired term. Carriages, whether with two or four wheels, were charged per day 4*s*. (84 cts.); if on Sundays 5*s*., or for a week 24*s*. (85. 04). Where a carriage was let for a year or more the occupier paid the crown duty, but in no other cases.

At this early period, it seems dealers in second-hand vehicles were in existence, whose "tricks of trade" would not disgrace some of our modern horse-jockeys. Felton's forewarnings are so honestly and faithfully given, that we must re-publish them. He says:—"The great demand, within these twenty years, for second-hand carriages, for foreign and home use, has induced many unskillful persons to commence dealers, who call themselves *brokers*, and pretend to buy for the purpose of breaking up and disposing of the old materials, but who, in general, instead of breaking, ramp up, and resell such carriages at exorbitant prices, imposing thereby both on the public and the trade. The profit which those dealers realize on an old carriage of 50*l*. or 60*l*. price, is commonly greater than the builder's originally was, when new, and often exceeds the half of what it is sold for; yet many people imagine, if the price is about one-half the original value, the purchase is reasonable, when, in fact, it is not worth one-quarter, or even an eighth.

"The means whereby these people are enabled to sell their carriages, is by giving them a good appearance, and imitating, as much as possible, the fashion. This they do by ornamenting them, in particular with plated work, new painting, putting in a new lining with some showy lace, new wheels, or ringing [tiring] them with new iron to give them the appearance of new, adding new lamps, &c. All the materials used for this purpose are of the cheapest sort, manufactured on purpose, but which, to a person unacquainted, look, for the moment, as well as the best. The expense in fitting up is chiefly bestowed in ornament, without in the least attending to the substance of the carriage, which is seldom worth one-half, for use, of what is thus bestowed upon it in ornament.

"Brokers or dealers find a great convenience in *Repositories*, now established in numbers; as they can there vend their carriages without being questioned as to their quality, which might otherwise detect the imposition; others who are of the trade sometimes make a convenience of a Repository for the same reason as the brokers, as they may there vend what in their own shops they would be ashamed of. From the apparent advantage of purchasing from those Repositories, people are induced to

buy from them in preference to dealing with a private trader; but every person attending those places ought to act with double caution, as the principal stock belongs to the brokers, or dealers in second-hand carriages, who take care to furnish those places with a variety of all sorts. It is, therefore, the interest of the repository-keepers, to recommend the carriages of brokers, in preference to those belonging to strangers, which not only serves the brokers, but themselves; for, from frequent selling, and being again immediately supplied by the same parties, nothing is lost by the rent for standing, and much gained by commission, while a stranger who has but one carriage to sell, the longer it remains unsold and at rent, the better; when at last the proprietor, wearied with waiting, and having the expense increased, and the carriage prejudiced by long standing, is induced to accept the broker's price, who mostly becomes the purchaser.

"Another great disadvantage attending those places is, that as a communication is seldom admitted between the buyer and the seller, they are both liable to be imposed upon, by exacting of the buyer more and paying to the seller less than the carriage was sold for; so that a considerably greater profit than that arising from the commission and standing storage may be derived by the repository-keeper, without adding anything to the value of the carriage thus sold.

"As there are such risks, it is to be recommended that no person will purchase from those places, but under the direction of some sufficient tradesman, who may be competent to judge of the real value of carriages in every state; for, although a carriage may look fair, by being disguised with paint and putty, which is artfully laid on, yet the carriage may be nearly rotten, and ought rather to be broken up than made use of."

To sell these "old traps," the ingenuity of the brokers was taxed to the utmost, and it was no unusual practice to pretend that it belonged to some nobleman who had parted with it because he had another more convenient, or, that the owner had left for the continent, or was dead. Another device was to put on some *fictitious* arms, crests or coronets, coupled with an old customer's name "of whom they had once bought a carriage," and perhaps the trick was repeated to sell a number of old carriages. It is true this trick would not take with Americans, but in England, where a lord is looked upon as "above the common herd," the case is different, and as the fashions did not change more than once in ten years or more, the age of a carriage was difficult to decide, even by experts —the value could only be estimated by the wear thereof.

The duties imposed by the English government at the close of the eighteenth century were onerous, and inimical to coach-making in different ways. They were so laid that the more carriages a gentleman kept, the heavier in proportion he was taxed. On a four-wheeled vehicle the tax was 8*l.* 10*s.* ($41) annually; and should the same owner have a second carriage, on that he was taxed 9*l.* 18*s.* ($47.89); and if a third or more, on them he paid 12*l.* ($58.20) each. The duty on two-wheeled vehicles was uniformly 3*l.* 17*s.*, or about $18.44. The coach-makers were also made to pay 20*s.* for every four-wheeled, and 10*s.* on every two-wheeled cart, those used for business excepted.

So detrimental to the interests of the trade did these taxes operate, it is said that more than half the members belonging to the different branches felt a necessity for engaging in some other branch of business to get a livelihood. The reduction of these taxes twenty-five years afterward saved the business from entire destruction, and gave a new impulse to coach-making, as will be seen in the coach (Fig. 33) where the design is much altered and

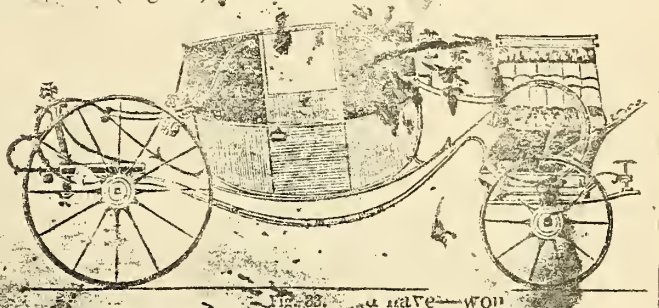


Fig. 33.

[illegible] have—won[illegible] improved, although [illegible] than the 2-inc[illegible] Should our reader compare [illegible] the 2-inch or the 3¾-inc[illegible] page [illegible]1, he will find that instead [illegible] sustain a load of [illegible] [illegible]p, the bodies had run into another [illegible] [illegible]gon with the [illegible]ad, as [illegible] in the center, and na[illegible] [illegible]ordinary us[illegible] wagons of [illegible] [illegible]ell to the side pannels. Th[illegible] [illegible] three different class[illegible] [illegible]nted, and in some respect[illegible] T[illegible] with iron axles, [illegible] [illegible]h coach of to-day. If [illegible], a [illegible] load 32 cwt.; 3[illegible] [illegible] 1805 [illegible] [illegible]stion [illegible] according to [illegible] state [illegible] cess[illegible] over [illegible] in [illegible] load is drawn. The last two [illegible] coac[illegible] [illegible] require the same draught [illegible] being about the extent of draught [illegible] re[illegible] [illegible]s are capable of making for any consider[illegible] [illegible] have an average of 122 po[illegible] [illegible] [illegible] than the [illegible]-inch ax[illegible] wit[illegible] [illegible]ds.

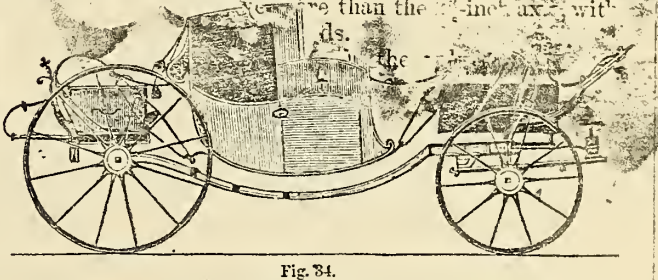


Fig. 34.

chariot, for town and country, and was sold for £202 ($977.68). The sweeps to the crest-panel in this design are in bad taste, and the body, as a whole, not much improved over Fig. 24, on page 105. The springs are an accommodation of the old S, or whip, to the more modern C sprigs, and well defines the progress invention was making at the beginning of the present century. In this example appears a bear-skin hammer-cloth, which, in traveling, was preferable to that of livery in common use, and was frequently ornamented with metal claws at the corners. It was quite fashionable then, in painting, to finish the carriage with "oil varnish."

Phætons had almost entirely gone out of fashion in 1805, and were superseded by the jaunting-car, German wagon or barouche, although the curricle and whiskey still maintained their popularity. A new-fashioned sporting dog-cart had also come in use, an illustration of which will be given in our next.

(*To be continued.*)

Carriages not Taxed—In revising the Tax Bill, the Congressional Committee have rejected the clause imposing a tax on carriages.

Home Circle.

For the New York Coach-maker's Magazine.

TWILIGHT THOUGHTS.

BY ANNIE M. [illegible]EACH.

O, SOLEMN Night! in [illegible] mourning robes,
Thou weep'st for the [illegible]ad young day,
Who never again, oh [illegible] again,
Through the gates of the morn will stray.

Thy tears lie thick on [illegible] [illegible]wers,
And thick on [illegible] grass [illegible]
Where the sunny smile [illegible] the [illegible] young day
Is never to play [illegible]

The good who pass from [illegible] away,
Will people the world to [illegible]
We shall see [illegible] shall not sigh
In the beau[illegible]
[illegible] thin[illegible] keeping [illegible] days,
[illegible] of varnish. I can acco[illegible]
[illegible] English varnish has in no other [illegible]
[illegible] have had [illegible] least expe[illegible]
[illegible] it is talk[illegible] ost, and, [illegible]
[illegible] bad, they lay the [illegible]
[illegible] "Engl[illegible] pass [illegible] a sp[illegible]
[illegible] workm[illegible] have seen [illegible]
[illegible] decided op[illegible] way or the [illegible]

For [illegible]

USE OF [illegible]

BY S. [illegible]

DID you ever observe [illegible] matter it [illegible] the arms when walking? Why, yes; I have all par[illegible] that we always swing them backward and forw[illegible] you [illegible] know that we walk much more easily when [illegible] on to [illegible] swing freely, than we do when they are in our pockets, or when they are confined in any other way.

There are quite a variety of ideas in using the arms when we are walking, which most people have never thought of, and which can all be explained on principles strictly philosophical.

Every one who knows how to walk knows that it is difficult to run, or to walk fast, unless our hands and arms are free; because they aid in balancing the body, and their motion backwards and forwards assists or aids our speed.

Whenever our feet are about to slip from under us, we throw our hand, or hands, outward and upwards, in the same direction that our feet are slipping. This motion of the arms tends to restore the center of gravity, which has been nearly or quite lost; and thus, the simple act of throwing up our hands saves us a most provoking bump and, perhaps, a serious injury.

When we run, we swing our arms backwards and forwards just as rapidly as our feet move; and when we walk our arms always move just as fast as our feet, and no faster. If we walk fast, our arms move fast; and *vice versa*. There is still another idea that is very curious, with reference to swinging of the arms when walking.

Whether we walk slowly or fast, or run as fast as we can, or simply jog along, the *right* hand always moves forward with the *left* foot; and the *left* hand moves forward with the *right* foot. This is strictly true of every little child that has just learned to walk, as well as of adults.

Let a person attempt to swing his *left* hand forward as he moves the *left* foot forward, and the *right* hand when he moves the *right* foot, and he will cut an awkward figure in attempting to walk; because the motion is unnatural. As we stand on one foot and attempt to bring the other foot forward, in order to keep the body well-balanced, then each arm must move backward and forward with the foot on the opposite side of the body.

Our arms are of very great service to us when skating, and it is curious to observe the peculiar motions of the arms, with reference to the movements of the feet, when skating either fast or slow. Surely, we all walk, run, or skate according to principles strictly philosophical; and, therefore, may be properly called *walking* or *skating* philosophers.

Pen Illustrations of the Drafts.

ROCKAWAY WITH TURNOVER SEAT.

Illustrated on Plate XXXIV.

THIS drawing represents a paneled body moulded off in imitation of a solid side, with a turnover seat in front. The sinking is represented by the light longitudinal lines at the bottom. At first view, the hind-quarter appears unnecessarily high, caused by the low side-panel, but this is rendered necessary to protect the seat-linings against dust and the injurious effects of the weather. The hood is a very useful appendage to this kind of vehicle. For a very light family carriage, this will be found very convenient.

PHAETON BUGGY WITH FOLDING SEAT.

Illustrated on Plate XXXV.

INSTEAD of the deep cut-under, as in a former design, the body of this drops at the hind part one and a half inches, affording ample room for stowing away small parcels. A buggy of this description would make a very convenient vehicle for business, with the seat folded in during the week, and open would render it suitable for conveyance to the church on the sabbath.

SKELETON BUGGY.

Illustrated on Plate XXXVI.

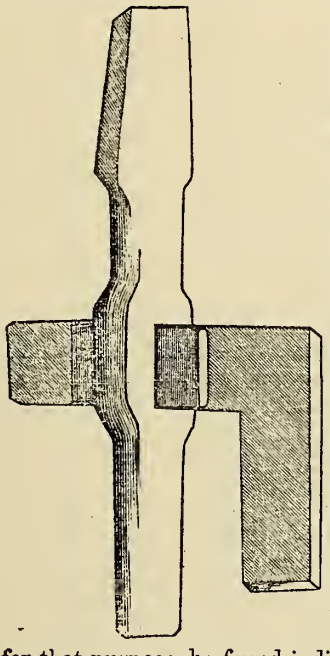
IN this example, frame the sills as for a common buggy, in which place the turned spindles, with a light rave resting upon them, as shown in the engraving, leaving the side open. The seat rests on four arched legs, mortised into the framework of the body. This is a very fanciful and cheap way of "getting up" a buggy for a fancy man. We have put a narrow sinking to this body, which the builder will deepen to his liking.

NOTE.—The buggies as printed on plates XXXII. and XXXIII. in the May number of this volume, should change places, to make the descriptions appropriate; the buggy as there standing, and called the Yacht Buggy, we call the Union Buggy; others, the Gentleman's Buggy; and some again the Coal-Box Wagon. Our reason for calling it the Union Buggy will be found on page 145.

Sparks from the Anvil.

BIT FOR MAKING KING-BOLT SOCKETS.

THIS illustration of an adjustable cutting-tool, used in making king-bolt sockets, when ironing coach carriage-parts, &c., has been furnished us by a particular friend to the Magazine. As may be seen, the cutter is secured into a bit-stock, and placed under a drill, in such a manner as to be easily adjusted to cut either wide or narrow, this cutter being kept in position by means of a wedge at side of the knife. The under-carriages of all vehicles, where platform-springs are used, usually require double casings for the king-bolt; and to make these traverse well, the inner one must be formed perfectly circular, so that this convenient tool will, for that purpose, be found indispensably necessary.



SOME DEFECTS OF BAR IRON.

Two common defects of bar iron are known as red short and cold short. Red short is that which cracks when bent or punched at a red heat, although it may be sufficiently tenacious when cold. Cold short iron, on the contrary, is weak and brittle when cold, but can be worked without much difficulty when hot. The quality of a bar of iron may be tested by nicking it at one side with a chisel, and then breaking it off or doubling it down at the notch. If the iron be cold short, it will break off at once with the blow of a sledge hammer. But if the bar be of good quality, it will not break off, but bend double, and those portions of it, to the depth of the notch on both sides, will separate a little from the body of the bar, and split up like a piece of fresh ash stick, exhibiting a clear, distinct, silky fiber. If this appearance be produced on a cold bar, and it be then raised to a cherry heat, and bent first in the direction of the pile and then at right angles to it, without cracking on the outer side of the bend, it is of excellent quality, neither red short nor cold short. A very small amount of phosphorus will make bar iron brittle, so small a portion as 0.5 per cent. having been found to make it cold short. Sulphur has been assigned as the cause of the short property of wrought iron; the presence of only 0.0001 of sulphur renders the iron very difficult to work at a welding heat.

MISCELLANEOUS SCINTILLATIONS.

SUCCESSFUL EXPERIMENTS in melting steel for manufacturing cast-steel in a common reverberatory furnace, in place of the small crucibles ordinarily employed, have been made in France. By this process, 2,000 pounds of metal can be melted in one mass, at a great reduction in the costs. During the process the air is excluded by a covering of melted scoria, and the fire supplied with a blast of hot air.

WILLIAM LONGMAID has recently patented, in England, a method of improving the qualities of steel, by alloying it with small quantities of gold and platinum. The gold, or platinum, is introduced into the ingot-molds, then the melted steel is run into the same, and then afterwards introduced into the reverberatory, or other furnance, containing the metal to be improved, when the gold or platinum becomes diffused throughout the whole mass, producing a beneficial result.

BLACK ASPHALT VARNISH, for iron-work, may be made by fusing 2 lbs. of asphaltum in an iron pot, to which add 1 pint of hot boiled oil. When well mixed, remove the pot from the fire, and, after cooling, add two quarts of turpentine.

STEEL may be obtained from scrap-iron, by cutting it into small pieces and putting with the 40 lbs. of it in a crucible, with 8 oz. of [illegible] ordinary use in wagons or [illegible] of manganese. Then [illegible] three different classes, [illegible] expose it and [illegible] with iron axles, [illegible] hours at a high heat, and [illegible] load of 32 cwt.; [illegible] day [illegible] position [illegible] according to [illegible] will be found [illegible] per cent. over [illegible] in [illegible] and is drawn [illegible] alone will require the same drawing steel six years [illegible] bring about the extent of draught from our foreign [illegible] are capable of making for any of the manufacture, cheaper [illegible] have an average its qualities [illegible] than [illegible] ds.

[illegible] Room.

[illegible] New York Coach-maker's Magazine.

TO PAINT A CARRIAGE.

(*Continued from page* 116.)

AFTER putting on the second coat of color, and it has become sufficiently dry, take curled hair and rub it enough so as to flatten down any brush marks which your fine brush may have made. This will be a sufficient body for a medium good job, providing care has been taken to mix the paint according to the directions, and you have had no bad luck in putting it on. If you wish to have an extra good job, you must add more coats of the color, or finishing coats, being sure to give it time to dry, so that you have body enough to smooth it down and take out the brush marks with rotten-stone. This rubbing-down is done with pulverized rotten-stone laid on a wet woolen rag, or felt, and then rubbed on the painted body until you have polished off all the brush marks. The most that there is about this operation is—carefulness not to rub too much in one place so as to rub through the color, and, at the same time, polish over every part evenly, so that it is as smooth as a mirror. If, by accident, you have rubbed through the paint it, sometimes, can be remedied by putting on the injured spot a little more of the color with a soft brush; but this kind of patching cannot be carried on to any very great extent on a first class job. While you are rubbing down the paint, use a sponge and water frequently, and wash it off so that you know just how much it has been rubbed.

After the body has been thoroughly polished wash it well with water, until you have removed every particle of the rotten-stone. All this requires the utmost carefulness, and the workman should not have any other business on his mind to divert his attention from his work. Having got a sufficient coat of paint on the body, the next thing will be to prepare it for ornamenting. Painters differ about this. Some stripe on the paint, and others put on a coat of varnish and stripe on that; I prefer the last way, because the striping runs on to the varnish easier than on the paint; therefore, I should put on a coat of good varnish—and, by good, I mean the very best to be had, for that is the cheapest for the workman, in order to produce the same effects in looks. It is very common, when speaking of the best varnish, to put in the word "English;" but, for myself, I have no very exalted opinion of English varnish.* There may be some that is just as good as our own, but my individual experience has been that I have found more bad English varnish than I have of American, where the latter came directly from a reputable manufacturer, who had a direct interest in keeping his reputation up as a manufacturer of varnish. I can account for the reputation which English varnish has in no other way than this: those who have had the least exp[illegible] know the least about it talk [illegible] ost, and, [illegible] comes out looking bad, they lay th[illegible] [illegible] if it happens to be "Engl[illegible] pass [illegible] a sp[illegible] [illegible]rticle, etc. The best workm[illegible] have seen [illegible] about giving a decided op[illegible] way or the [illegible] less they were Eng[illegible]

For varnishing, [illegible] necessary [illegible] the room free from dust; [illegible] [illegible]perature about as warm as a w[illegible] [illegible] bear to work in. If you are not [illegible] that [illegible] varnish is free from specks, it will be better to filter it through cotton factory cloth; sometimes, there are small particles of gum in varnish, which are transparent so that you cannot see them, until after the varnish has been laid on to the work, when they show themselves in small specks, which we sometimes take for specks worked out of the brush. Lay on the varnishes with a good fine bristle brush, even and with straight brush marks, drawn very lightly for the finish. The varnish should be reduced with turpentine just enough so that it will work easy; it will be injurious to reduce it any more than that, but if you have it too thick it will sag down, and leave the work in a very bad shape. Sometimes, on a very smooth finished job, the varnish will dry leaving little pit-marks, where the varnish seems to crawl off from the paint, making it look as though it had had the small-pox. I believe this is a defect in the varnish, and I never saw it do so but once; yet a painter, who had used a large quantity from the same lot of varnish, told me that it was a frequent occurrence with him. It is a frequent occurrence for striping and varnish to crawl off from where it has been laid, and, I think the preventative of the latter difficulty will answer for the former.

To prevent paint or varnish from crawling, take a flannel rag and rub it over the work previous to varnishing, striping, or painting; this will prevent any difficulty about its crawling. Of a great many ways for preventing paint or varnish from crawling, which I have seen practiced, this, I think, is far the best and cheapest. In varnishing, always be careful and not put the varnish on the corners of the work and leave it to run down. Always examine these places carefully before leaving the work; and, as a general thing, you must commence on the inside panels of a body, and work to the outer edge the last thing. Another general rule is, to commence the work that is the highest up first, and finish that which is the lowest last; this prevents dirt from falling on and sticking to the paint while you are working on it. When the work is varnished, close the room tight and leave it to dry, without opening the doors or doing anything to get dust on the work, until it gets so that it will not stick. After taking all these precautions to prevent specks, if you should still be unfortunate and get some on, they must be removed with fine sand-paper before the striping or ornamenting is commenced.

In ornamenting and striping a carriage it requires considerable good taste and judgment. If the painter takes hold of his work as an artist does the canvas, and tries to see how much of his skill he can display on the surface he has to work, he will be very likely not to please himself, or any one else. He should be contented, not particularly to show off his own skill, but to preserve and show in the most graceful manner the workmanship of the builder. If the builder has not got gracefulness in *his* work, then the painter has still to try, by striping, to give it that appearance. It is very often the case that we see good work made to look like very ordinary work, merely from a bad taste in the striping, so that it does not preserve the gracefulness which the builder intended it to have, and no one seems to know exactly where the fault is, for they cannot point out any particular defect in the painting; on the other hand, I have seen very ill-shaped work, particularly in that kind called market-wagons, or wagons of that grade, put into such shape by the painter that no objection was made to their ill proportions. There is a certain curved line which enters into the form of things having beauty and gracefulness, and if that line is wanting there are but few who can point the particular defect, but every one knows there is something wrong.

This peculiarity was discovered almost a century and a half ago by the renowned satiric painter, Wm. Hogarth. He attached a curved line to a portrait of himself, and wrote under it "The line of grace and beauty." At the time, he had only just enough reputation, as a painter, to call down upon his works the criticism of other painters. They said, "What does he mean by that?" After a while he explained what "*he meant by that*," by publishing his "Analysis of Beauty." In this work he showed so conclusively that the curve was the line of beauty, and that round swelling figures were the most pleasing to the eye, that his cotemporaries exclaimed, "Who did not know that?" This taste enters into the mind of every man, whether he knows it or not, and frequently does damage by sacrificing strength, where it is required, to beauty. The wood-workman has it, and the smith has it, and the painter has it; yet it is the duty of the carriage-painter to keep himself in the back-ground, and show off to the best advantage the work of those who have preceded him.

In large panels of carriages, and particularly on the backs of sleighs, it frequently is necessary to put in a centre ornament which destroys the large and clumsy look which it otherwise would have. This often gives

* We are always disposed to let our correspondents "show their opinions;" but are not *disposed*, in this instance, to "shoulder the responsibility" that might attach itself to us, should we endorse what our respected friend says of English varnish. We are of the *opinion* that any one who follows out our directions, "How to use English Varnish," published on page 150, volume Three, with the *genuine* article, will be obliged to confess that Americans are still behind-hand in making varnish.—Ed.

painters a great deal of trouble, because they do not know how to get up an ornament; and yet the thing is very simple when understood, requiring no uncommon skill.

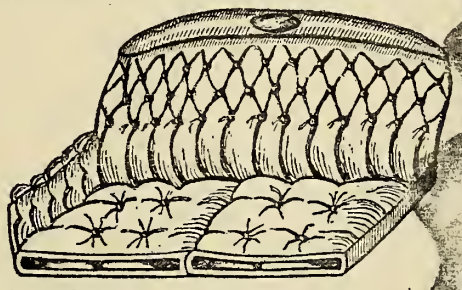
I will give the process of putting the ornament on the panel of a carriage now, as it will be necessary to do so before the body is striped, and I shall not revert to the subject again, although I expect the painter, without any very great stretch of ingenuity, will make the same process answer to paint landscapes on the inside of omnibuses, put borders on sleighs, or, in fact, do any kind of ornamenting. H. H.

(*To be continued.*)

Trimming Room.

LINING FOR A PHAETON.

We are too modest to claim much novelty for the design we present our friends with this month, and [illegible]



is not altogether devoid of that quality. What little novelty there is, is comprised in the roll above the diamonds forming the back squab. Then a center-piece is inserted in the roll, which is made rounding. This center-piece should be ornamented by stitching.

CARRIAGE FLOOR-CLOTHS.

The following remarks in relation to carriage floor-cloths we find in a late number of the *Carriage Builders' and Harness Makers' Art Journal.* The hints they convey may profit our readers:

"As manager of a coach factory, I have long noticed the want referred to in your circular just received, of harmony in color between the floor-cloths in ordinary use and the painting of first-class carriages, and have effectually remedied this defect many years ago, by selecting, in the first instance, floor-cloths possessing the qualities of age, substance, and figure, and the nearest approximation in color to the required shade I deemed most suitable for the different carriages manufactured in this establishment, and then having them glazed with a transparent color, viz.: for a blue carriage I chose a pattern of bright blue ground, frequently with a white spot, and this I had glazed with ultramarine in varnish; other colors similarly; for dark green, distilled verdigris; for olive green, Italian pink; for dark browns, lake or red, purple lake, crimson, scarlet lake, etc., as the case may be; and thus, we always have floor-cloths corresponding in color with our carriages, and exhibiting a brilliancy of tone that excites the surprise of those unacquainted with the process of preparing these cloths."

EXPLANATION OF STITCHING PLATE O.

Stitching-plates have "played out" in New York city, but they are still quite extensively used in many parts of the country. For the benefit of our friends at a distance, we are induced to continue them this month.

Nos. 1 and 3 are center-pieces for the boots of buggies, the first a half-figure. Notice that figure 3 differs somewhat in the ends, so that each, used separately, will answer for two distinct patterns.

No. 2 will serve to ornament a dash-flap.

No. 4 is intended to supply, in a half-figure, an ornament for the tops of buggies.

The New York Coach-Maker's Magazine.

JULY 1, 1862.

E. M. STRATTON, Editor.

TO READERS AND CORRESPONDENTS.

Bound Volumes *of this work are sold, singly, for $3.50 per vol. or Vols. I., II. and III., when purchased together, for $9.00. The three volumes, bou[illegible] the subscription for the fourth year), will be furnished fo[illegible] three volumes, in numbers, will be sent for $8, when or[illegible] volumes in numbers, will be sold for $3, or any single [illegible]stion [illegible] acc[illegible]*

Co[illegible] over [illegible] in [illegible] is *ready for binding the numbers there[illegible] require the [illegible] 25 cts.), can be had at this office [illegible] being about the extent [illegible] stage on which we prepay), [illegible] cents. [illegible] are capable of makin[illegible] bound for 75 cents each in our uni-fo[illegible]*

Fo[illegible] have an [illegible] *ork is 3 cents per quarter, paid in advance. [illegible] from [illegible] thus all Postmasters charging more, and [illegible] will have the matter [illegible] ght.*

☞ *All letters directed to this [illegible] ice on business* NOT *relating to the Magazine, but solely for the writer's benefit, must inclose a stamp; if requiring an answer, two red stamps. Orders for a specimen number must be accompanied with nine three-cent stamps. When these terms are* NOT *complied with, no attention will be given them.*

OUR NEW QUARTERS.

On the covers of the May number of the Magazine we briefly announced the removal of our office to 82 East Fourteenth Street. Our old quarters had become too far "down town" to answer the conveniences of an office for our Magazine and a location for conducting the carriage business with advantage. When we started in business, several years ago, our manufactory was in one of the most central sites in New York; to maintain a central position in the metropolis, we have been compelled *to march* "up town," more than a mile in a northern direction. As the world moves, we suppose a few years will again leave us down town.

At the present time we are *settled down* in one of the most beautiful streets of the city, one hundred feet broad and running across it east and west, directly opposite Irving Place (another aristocratical street), the entire length of which, terminating in Gramercy Park, is in full view from our sanctum window, northward. Looking westward, we have a splendid view of the equestrian statue of Washington, Union Square, Fourth Avenue, and Broadway, only a few yards distant; eastward, with the

Academy of Music, the Medical College, and other public buildings, forming the foreground of the picture, the street stretches away to the East River, the view showing the passing ships, a view of Long Island in the distance completing the panoramic landscape. The larger portion of the edifices in this street are "brown stone fronts," handsomely chiseled, making it one of the most lovely places for a residence, or for the pursuit of business, on Manhattan island, anywhere outside of the Central Park. When writing to us, our friends will please remember our new address; and, when they visit the city, we shall be happy to receive their calls, as well as subscriptions for the Magazine. We can still supply complete sets of the work.

LARGE AND SMALL AXLES—WHICH ARE BEST?

The reader will find this question disposed of, on page 155 of this volume, by answers from two different correspondents. A similar question was [illegible] by our ingenious friend, S. E. T., on page 1[illegible] of Volume Three. His question gave it as the popular opinion that a four-inch *wooden*-axle arm would pass [illegible] a spindle with less friction [illegible] have seen [illegible] small *iron*-axle arms. [illegible] no metal sockets [illegible] any such [illegible] necessary [illegible] correspondents, above referred to, [illegible] clearly shown that small axles are preferable to large ones in overcoming obstructions.

We notice that a difference in opinion prevails between city and country carriage-makers, on this subject, and we think we can well account for this discrepancy. Those in the country who frequently are required to use wooden axles, to satisfy what we may denominate rustic "old fogy prejudices," very seldom trouble their brains further than to please a customer and get pay for their labor. These are too frequently found taking their *ideas and money* from the same class of people; many of these customers (not accustomed to scientific investigation) having no other reason for their "ideas." than because *their* grandfathers got along well enough with wooden axles, *that* makes them good enough for anybody else. There was a time, also, when the *cheapness* of wooden axles was a powerful argument in their favor with some minds. Happily, that time has passed away. In cities, a wooden axle for pleasure-wagons is a *rara avis*, and for carts are fast disappearing. Lest we may be charged with discourtesy towards country carriage-makers, in what we have said above, our apology is that we were once "one of them," and know whereof we write.

In regard to small axles: since the question has been asked us, we have put it to several of the craft in this city, and, what is very remarkable in contrast with the popular belief as expressed in the query, we have found all to coincide with us—not a dissentient voice—*that a small axle possesses more motive-power for overcoming obstructions than a large one.*

For our present purpose we will suppose both axles are iron, the one four inches, the other one inch, in diameter. Presuming they are both of the same quality and temper, who does not see that the friction *must*, in the very nature of the case, be greater in the large than in the small one; because there is more surface in contact with the larger box. Even where no obstruction occurs, the small one has the advantage of less friction. As the large axle moves forward in the rotating wheel, either horizontally or inclining upwards, it must *press* with great *frictional weight* against the front and bottom portions of the box of a loose-fitted or worn axle, and if close-fitting it will be still greater. This cannot fail to retard the movement of a wagon or cart in overcoming an obstruction; and the more heavily laden they may be, the greater will be the difficulty. We have no doubt that our four-inch axle will be found twenty-five per cent. harder in running, than the small one of an inch, providing both are iron. If the larger one is wood, we claim there will be thirty-five per cent. disadvantage.

We are aware that, among some persons, the opinion is entertained that, in a large axle, there is more lever-power for propelling the carriage. The lever-power *is* there, no doubt, but we differ from them in its manner of operation; it acts to retard the progress of locomotion, by increased friction-surface, as before intimated. In this connection, the reader is advised to consult an article under the head of "The Battle of the Axle-trees," in volume three, page 90; and "The Axle Controversy," on page 136 of the same volume.

EDITORIAL CHIPS AND SHAVINGS.

The Hand-Saw.—The time when this indispensable tool was first invented is unknown; some suppose it to be of modern introduction. This is scarcely possible. Pliny, the Roman author, ascribes its invention to Dædalus; and Apollodorus, with equal earnestness, says, *that* credit is due to Telus. Apollodorus says: "Telus, having found the jaw-bone of a snake, employed it to cut through a piece of wood, and, finding it so effective, afterwards had one made of iron." Saw-mills were in operation, in Madeira, as long ago as 1420. We are told that saw-mills in England were violently opposed, on their introduction, in 1633, by a Dutchman, so that he was forced to abandon his enterprise.

Steam-Carriages on Common Roads.—The Parliament of England has lately passed an act regulating the speed of locomotives on common roads, so as not to exceed ten miles on the public highways, nor over five miles in cities, towns, and villages. A speed of over ten miles is considered destructive to public roads, and over five destruct-

ive to human life in crowded thoroughfares. Thus we see that *the world does move*. Twenty-five years ago such provision would have been scouted as "love's labor lost."

SALE OF A EUROPEAN TOURIST'S ESTABLISHMENT.—We had the curiosity, a few days ago, to attend the auction sale of "a gentleman's stock," near our office, which the bills reported as sold "in consequence of the owner's going to Europe," and perhaps learning from the result the effect of the times on the prices of carriages.

The first put up was an excellent coach, worth at least $400; sold for $165. A double-seated "Jagger" was the next sold, announced for $175,—at which price we would like to find customers for as many new ones as we can build. The next a sleigh, bells, and cover, *sacrificed* for $11; then a light buggy for $35, all it was worth. A doctor's phaeton, worth about $50, "given away" for $35.50; a rockaway, worth $25, "parted with" for $21.50. Several saddles, harnesses, and robes, which had "seen their best days," were *sacrificed* in the same cruel manner.

SCRAPS OF AMERICAN HISTORY.—In 1636, when the Rev. Thomas Hooker took an inland journey, with a few followers, and settled Hartford, his wife, who was an invalid, was carried in a *horse-litter*, the whole party being fed chiefly by the milk supplied from one hundred and sixty cattle belonging to them.——Horses and carts crossed the frozen Boston harbor, in the severe winter of 1641-2.——Coaches appear to have been introduced into Boston in 1669.——The Boston News Letter, of March 9th, 1732, states that when the Hon. William Tailer (Lieut-Gov. of Mass.) died, there was in attendance at his funeral "a great number of gentry in their coaches, chaises, etc., and an abundance of spectators."——William Campbell, a Scotch emigrant and wheelwright, from Isla, in 1738, was attracted to this country by the offer of a free grant of land from the province of New York, then a dependency of England. He died in 1763.

QUESTIONABLE ECONOMY.—A writer in the *Rural New Yorker* says: "Some people are so economical of blacksmiths' expenses, that instead of getting a tire set at the right time, they will let it run a week or two longer, and on some dark night they will be found *feeling* their way home, *with three wheels and a rail substituted for the fourth.*"

ECONOMIZING TIME IN HARNESSING.—A writer in a country paper says he has his harness for a single wagon made with the collar open at the bottom, and no buckle, but the hames are fastened to the collar, and there is no buckle to fasten them both. The tugs and hold-back straps are not unhitched; the lines lie over the dash, where they will not get under the horse's feet; they may be unbuckled from the head-stall, or remain with it, and all hang up together. He has a wooden hook, like an ox-bow, with half the length of one side cut off, so as to hook under the back-saddle, collar, and head-stall. A cord is attached to the long end of the hook, and put up over a pulley, and through another pulley, and down to about three feet from one side of the horse. Unbuckle the belly-bands and the hame-straps, put under the hook, pull all up, and make the cord fast to a small hook at the side of the carriage-house. A horse will soon learn to place himself back in the breeching, when the harness and shafts are let down, three or four buckles are fastened, and he is harnessed.

THE CARROCCIO—A RELIC OF THE PAST.—At Sienna, in Italy, near the cathedral, stand two poles, relics of the *Carroccio*, or car of state, captured from the Florentines in 1260. This Carroccio was a large, heavy four-wheeled car, surmounted by a tall staff, all painted a bright red. On the staff, surmounted by a gilt ball, floated in the wind the standard of the city of Florence in the day of its prosperity. Beneath the standard was a large crucifix; and on a platform [illegible] of the car was placed a few of the most valiant soldiers, and on another platform in the rear were the trumpeters and drummers; a priest, standing near the crucifix, gave absolution to [illegible], sing. The car was drawn by four oxen, cover[illegible]age on which we cloth reaching to the ground. The Carro[illegible] bound for 75— inferior substitute for the ancient war-chariot, and intended to be an emblematic representative both of the Florentine religion and state. Its capture by the enemy was thought to be an intolerable disgrace.

NUMBER OF HORSES IN THE WORLD.—An estimate fixes the number at about 27,000,000; of this number, there are 5,000,000 in the United States. It is supposed that in Europe there are eight or ten horses to every hundred inhabitants.

LITERARY NOTICES.

The Atlantic Monthly, for May and June, has reached us since our last issue. The July number will commence the tenth volume, affording a good opportunity to begin subscriptions. Our space this month is limited, so that we cannot find room to say all we wish to; we must consequently, in a summary, tell our readers that we consider this publication one of the best published in the world, and these two last numbers of *The Atlantic* unsurpassed by any preceding them. "Sunthin' in the Pastoral Line," in the June number, covering seven pages, would alone be cheap for three dollars. Published by Messrs. Ticknor and Fields, Boston.

Have any of our mechanical readers, who cultivate a garden, neglected until now subscribing for the *American Agriculturist*, published, in this city, by our friend, Orange Judd, Esq.? Neglecting to do so will entail on you a great loss, which one dollar will prevent. We consider it the cheapest and best monthly, for instruction in horticultural and other kindred pursuits, to be found in this country. It is well illustrated and ably conducted. Try it for a year.

ENGLISH IMPROVEMENTS IN CARRIAGES.

Our London cotemporary having failed to make its appearance since January, we have gathered the following from the London *Mechanics' Magazine, Newton's Journal of Arts*, &c., of later dates. We do not understand why it is so; but can assure our readers that, although these patents are dated nearly a year back, they are the latest made public:

Aug. 28, 1861. Improvement in the construction of Carriage-Wheels.—S. Carpenter. This improvement is intended for cases where wood spokes and felloes are used; but, instead of the tenon of the spoke entering the felloe, as usual, a double metal socket is applied to the ends of each spoke, and is received into the larger ends of the double socket, while the smaller part of wood, which ordinarily passes into the hole or recess formed to receive it in the felloe, enters the smaller portion of the double socket, and that smaller portion of the double-socket enters the hole or recess in the felloe, such hole or recess being made larger for the purpose of receiving the smaller portion of the socket together with the point of the end of the wood spoke which is therein; but it is preferred that the end of the spoke which enters the smaller portion of the metal socket should be made less than it ordinarily would be, and the smaller portion of the metal socket made exteriorily of the same dimensions as the end of the spoke would be if no metal socket were used. The double sockets may be made of any suitable metal, but it is preferred that they should be made of malleable cast-iron. *Patent abandoned.*

Sept. 5, 1861. Composite Hearses.—J. E. Ridges and J. Baker. These are so constructed that a compartment is formed in front for receiving the coffin. At or near the center of this compartment a strong vertical axis, projecting upward from the top, and also, if required, downwards from the bottom, is placed, the same being secured firmly to the material facing this compartment, over which strong straps, or arms of wood or iron, are placed at top and bottom, also where a lower center is applied, connected with the body of the carriage, for receiving the mourners usually attending funerals. This body is mounted on a pair of wheels with springs, in the ordinary way, and fitted with a door at the back or side, and the horizontal axis of the front wheel is attached to the coffin compartment, to which, also, is attached the driving-box, and pole or shafts; the whole resting on the axis projecting upward and downward, as described. *Patent completed.*

Facilitating the progress of Carriage-Wheels on Common Roads.—J. T. Pensam. This consists in providing wheels with legs or levers capable of sliding beyond the peripheries of the said wheels, for the purpose of enabling the same to obtain a firm hold upon the ground, and thus, actuated by any motive power, facilitating the progress of the carriage. *Patent abandoned.*

Sept. 6, 1861. Tires without Welding.—W. Allott and J. Thelwell. This is an attempt to make tires, as follows: The inventors produce two rings, composed each of a bar curled in a hellical form, the coil of one ring being in the opposite direction to that of the other, and the ends of the bar being tapered off, so as to leave an even face on the ends of the helix, or side of the ring. One of these rings is made smaller in diameter than the other, and is fitted inside of the larger one, and, as they are coiled in opposite directions, the joints or seams will cross each other, thereby considerably increasing the strength of the tire or hoop, which is free for the usual weld, and is not liable to split, as ordinary tires are. Any number of rings may be used, according to the strength and character of the tire, if care is used to put the ends of the coils in the same place. This is now to be welded under a steam-hammer, and afterwards finished by rolling. *Patent abandoned.*

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

April 1. Improved Japan Varnish.—Charles Cole, of New Brighton, Pa.: I claim the described composition for Japan varnish, made of the ingredients specified, and mixed together in about the proportion as set forth.

Improvement in Doweling Wheels.—Phineas Jones, of Newark, N. J.: I claim, *First*, A dowel, B, formed of a metal tube fitted in annular recesses, *b b*, in the parts to be connected, substantially as set forth. *Second*, Having the interior of the metal dowel, B, of variable diameter, or of double taper or conical form, in combination with the wedge, C, for the purpose of locking the cores, *c c*, in the dowel, as described.

Improvement in Tenoning Machines.—T. B. Jones, of Paterson, N. J.: I claim the peculiar arrangement of knives and chisels, as shown and described, when operated in the manner and for the purpose specified.

Improvement in Wagon Springs.—J. O. Farrell, of Boston, Mass. (assignor to himself and William Vesey, of Cambridgeport, Mass.): I claim the construction of side spring wagons, with the rear ends of the springs, D D, jointed to curved arms, F, which are also jointed to the hind-axle, all as shown and described.

8. Improvement in Boys' Sleds.—J. N. Brown, of New York city: I claim a new article of manufacture, a boy's sled, A, having a pivoted runner, C, in front, provided with a foot-lever, or tiller, *d*, and guiding chord, *e*, as and for the purposes shown and described.

Improvement in Carriage-Brakes.—M. K. Lewis, of Iowa City, Iowa: I claim making the brake-blocks, which act on the carriage-wheels, to turn or rotate on the brake-bar and wind chains which are fastened to the brake-blocks and to some part of the carriage, so as to wind the chains around the hub of the brake-block and draw the brake-blocks against the wheels, as described. And, in combination with the above-claimed devices, I claim connecting the breech-bar to the pole, substantially as described, so as to operate, or apply, and release the brake by the team.

15. Improved mode of attaching Horses to Vehicles, and detaching them therefrom.—A. Colburn, of Leominster, Mass.: I claim, *First*, The mode described of attaching horses to vehicles, by means of the draw-bar, C, draw-pins, D, and double-slotted plates, E I J, when combined and arranged to operate as set forth. *Second*, The combination of the strap, H, rings, *f*, draw-bar, C, spring, *c*, and slotted plates, E I J, when arranged to operate in the manner and for the purpose set forth.

Improvement in Wheel Vehicles.—Daniel Gilbert, of Middlefield, N.Y.: I claim the rotating axles, H M, with the friction-roller bearings, F F G G, in combination with the wheels, O, placed loosely on the arms, *a*, of the axles, as and for the purpose set forth.

Improvement in the mode of Lubricating Axles.—J. F. Stevenson and T. B. Hammer, of McKee's Port, Pa.: We claim the hub, A, chambered recess, *a*, channels, *c*, and thumb-screw,

g, when combined and arranged to operate in the manner and for the purpose set forth.

IMPROVED DEVICE FOR HOLDING HARNESS REINS.—E. C Mackinney (assignor to himself and J. H. Powell), of Peekskill, N. Y.: I claim, as an improved article of manufacture, a rein-holder, formed of the stationary plate, A, and an adjustable plate, C, actuated through the medium of the screw, B, as shown and described.

22. IMPROVEMENT IN BOX-SETTERS FOR WHEEL-HUBS—F. W. Dexter, of Randolph, N.Y.: I claim a clamp for holding the hub for boring, consisting of the head-piece, A, cone-piece, B, screw-rods, C, and nuts, D, substantially as described.

IMPROVEMENT IN CARRIAGE-BRAKE.—William Ellmaker and C. Hurst, of Earl Township, Pa.: We claim the arrangement of the jointed lever, A B, the step staple, *a b*, and the jointed rod, F, combined and operated substantially as set forth, for the purpose specified.

IMPROVEMENT IN WHEEL-VEHICLES.—J. O'Farrel, of New York city: I claim the connecting of front axle, F, to the perch or reach, B, by means of the two slides, E G, placed respectively on the shafts, D H, and connected with the axle F, substantially as shown, for the purpose set forth.

IMPROVEMENT IN BUCKLES.—E. A. Pierce, of Brighton, Mass.: I claim, as a new article of manufacture, a buckle, constructed substantially as described, with its frame A, slotted roll, B, and ratchet and pawl, *d e*, for the purpose described.

IMPROVED SLIDE FOR HARNESS.—J. S. Topham, of Washington, D. C.: I claim the employment of the spring-plate, B, and box, A, constructed and used substantially as and for the purpose specified.

29. IMPROVEMENT IN SPRING FOR VEHICLES.—Joseph Davenport, of Massillon, Ohio: I claim a vehicle-spring made up of pairs of short sections of leaves, *a a*, arranged around a common center and radiating therefrom, and clamped between two disks, at their inner ends, and riveted or clamped together at their outer ends, all substantially in the manner and for the purpose described.

IMPROVEMENT IN MACHINES FOR UPSETTING TIRES.—Alfred Ingalls, of Independence, Iowa: I claim, *First*, the cams, *f f*, in combination with the jaws, D D, attached to the bars, A A', and arranged, in relation with the jaws, to operate as and for the purpose specified. *Second*, The key, H, when used in connection with the bars, A A', jaws, D D, cams, *f f*, stock C, and cam F, as and for the purpose set forth.

IMPROVEMENT IN MACHINES FOR BORING SEATS OF BUGGIES.—G. W. Lemley, of Pavilion, N.Y.: I claim a machine for boring the corner holes in buggy-seats, and articles of a like nature, consisting of a combination of proper means for regulating and determining the point where, and the angle at which, the said holes are to be bored, substantially as described. I also claim a machine which possesses the capacity of regulating and determining the place and angle of the corner holes, as well as proper means for determining the bevel of the posts in their cross section for that angle, substantially as set forth.

I further claim a machine which possesses the capacity of regulating and determining the place and angle of the corner holes, as well as the proper means for determining the bevel or miter of the shoulders of the tenons on the posts for that angle, as described.

I also claim a machine comprising proper means for laying out and determining all the bevels of the posts of carriage-seats, &c., to fit them to any desired angle of corner or post-hole, as set forth. And, finally, I claim a machine consisting of a combination of proper means to bore the corner or post-holes of a carriage-seat, &c., at any desired angle, and to determine or indicate the bevel of the posts in their cross section, and the bevel or miter of the shoulders of the tenons thereon, for that particular angle, or corner, or post-hole, as specified.

IMPROVEMENT IN SLED AND SLEIGH RUNNERS.—S. H. Noble, of Vernon Springs, Iowa: I claim, as a new article of manufacture, a sled or sleigh runner, formed of a cast-iron crook, B, with or without the shoe, C, and a straight wooden portion, A, combined or put together, substantially as shown and described.

May 6. IMPROVEMENT IN LUBRICATING AXLES.—J. H. Calkin, of Troy, Pa.: I claim, *First*, The oil-tube, D, formed of two parts, *a b*, arranged substantially as shown, to admit of being adjusted to suit hubs of different diameters or size, as set forth. *Second*, In combination with the tube, D, the cap, E, and spring, F, constructed and applied to the tube substantially as and for the purpose specified.

IMPROVEMENT IN BRAKE FOR WHEEL-VEHICLES.—Edward Court, of Coeymans, N. Y.: I claim the slide, F, fitted to the perch or reach, C, and in the back bolster, *e*, as shown and described, in combination with the shoe-levers, G G, draught-link, O, lever, K, and rod, L M, the latter having the double-tee, N, attached and placed under the draught-pole, E, all arranged as and for the purpose set forth.

IMPROVEMENT IN SHACKLE FOR CONNECTING SHAFTS TO AXLE.—A. A. Peatt, of Greenfield, Mass.: I claim the iron, A, provided with the hook, B, in combination with the eye, D, and the bolts, C C, or their equivalents, substantially as and for the purpose set forth.

IMPROVEMENT IN THE METHOD OF CONSTRUCTING CARRIAGES.—E. W. Seymour, of Lisle, N.Y.: I claim the peculiar construction and combination of springs running lengthwise and attached behind to the axle, when connected with relieving bars behind, and both acting as relieving bars in front, and operating in conjunction with each other, and from the center each way, forming a reach, and saving the springs from the tension of the draft.

13. IMPROVED BLACKSMITHS' TONGS.—Elisha Rees, of Manassas Station, Va.: I claim the employment of the handles, A B, the jaws, C D, the bar, E, screw, F, and standard, G, arranged and used together in the manner and for the purpose set forth and described.

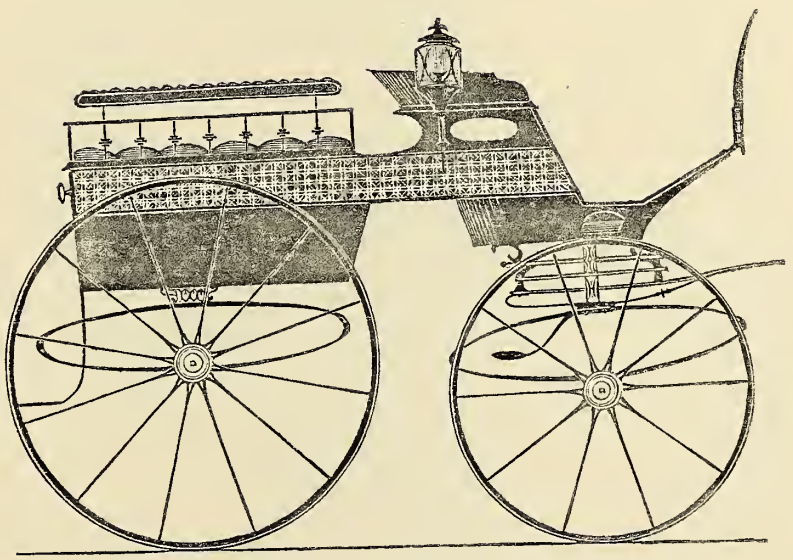
20. IMPROVEMENT IN SCREW-DRIVERS.—Julius Thompson, of Taunton, Mass.: I claim the combination of the lever, B, with screw-driver, A, substantially as described, and for the purpose specified.

27. IMPROVEMENT IN WAGONS.—J. A. Morris, of Neversink, N.Y.: I claim this substitute for the common elliptic spring buggy: a body, the outlines of whose ball is the arc of a circle, confined upon horizontal longitudinal spring bars, as set forth.

IMPROVEMENT IN HUB-MORTISING MACHINES.—Edward Joslin, of Keene, N.H., and D. L. Gibbs, of Norwich, Conn. (assignees to C. B. Rogers & Co., Norwich, Conn.): I claim, *First*, The thumb-lever, A, when used in combination with the spring, *c*, to draw the index-pin out of holes in the dial-ring. *Second*, The sliding plate, H, on the tilting bar, I, when used to raise the spring, K, as specified. *Third*, the swivel-head, three movable stop-plates, U U, set screws, I I, and adjustable collars, R R, when connected with bed, W, by connecting bar, P, for the purpose specified.

IMPROVEMENT IN WOOD-BENDING MACHINES.—(A RE-ISSUE.)—J. C. Morris, of Cincinnati, O.: I claim, *First*, A wood-bending form, to which timbers are made to conform by bending them from the center or inner end of the desired curve outward, when used in combination with abutments or clamps to prevent or regulate end expansion, and levers, or handles, or their equivalents, to guide the bending, substantially as described. *Second*, A stationary or poised wood-bending form, in combination with the cords, levers, and drum, or their equivalents, and the eccentric clamp, or its equivalent, in the manner and for the purposes set forth. *Third*, In combination with the stationary form, levers, and abutments, I claim the employment of hooks, or hooks and pins, or their equivalents, that shall embrace the ends of the wood to restrain the wood in shape, and permit the removal of the abutments, after the completion of each operation.

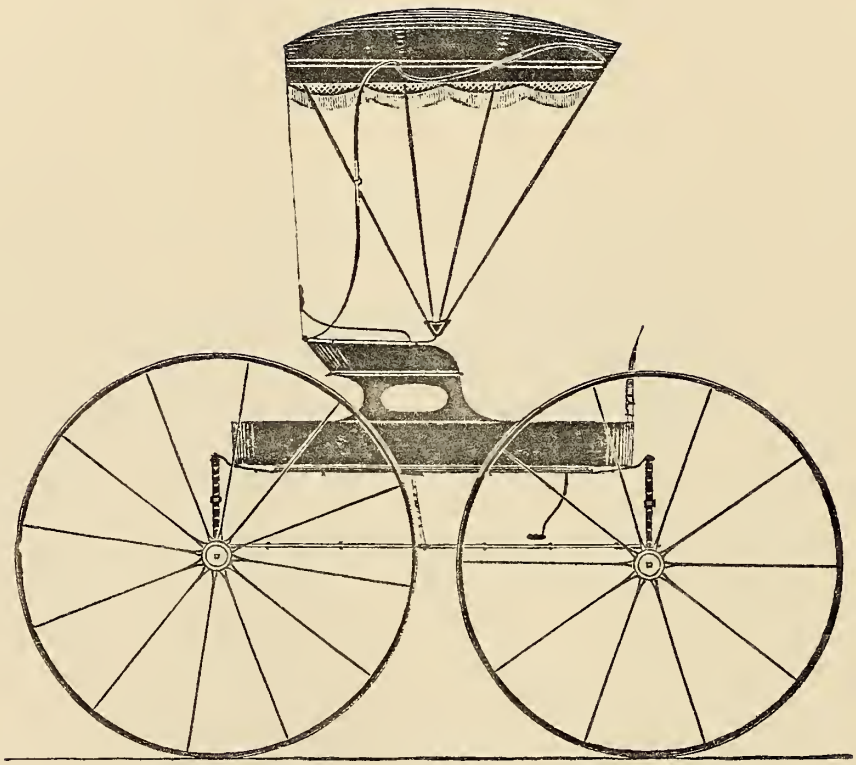
IMPROVEMENT IN BUCKLES.—L. A. Sprague, of Brooklyn, N.Y.: I claim constructing the lever of a strip or plate of metal folded back upon itself, or doubled, and inclosing the axis of the frame upon which the lever turns or works, as set forth.



SOCIABLE PHAETON.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

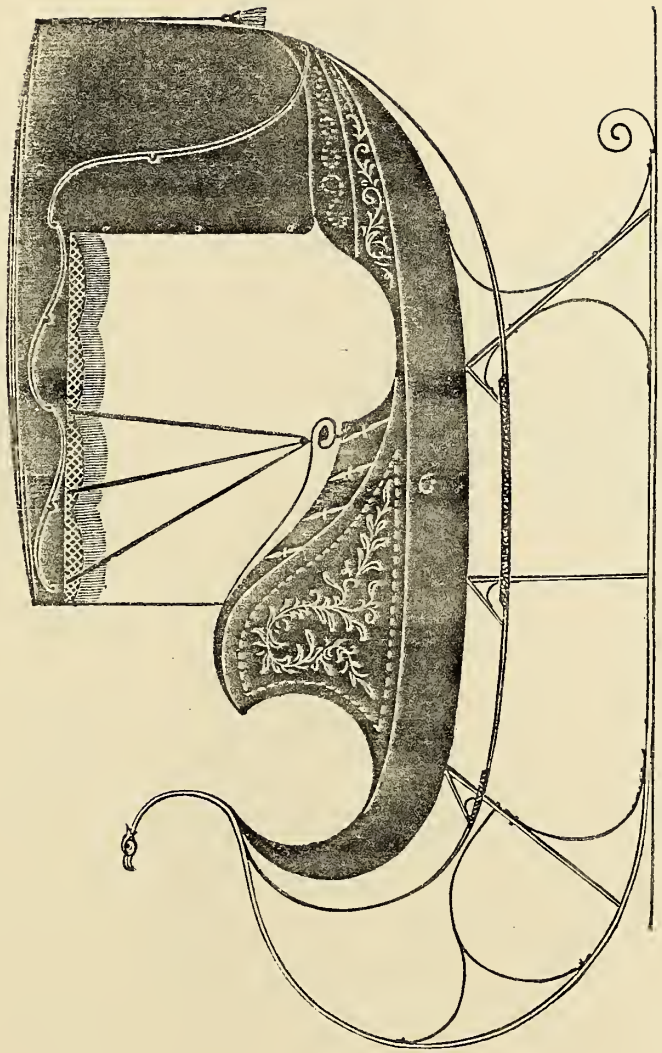
Explained on page 177.



DEEP-SIDED BUGGY.—½ IN SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 178.

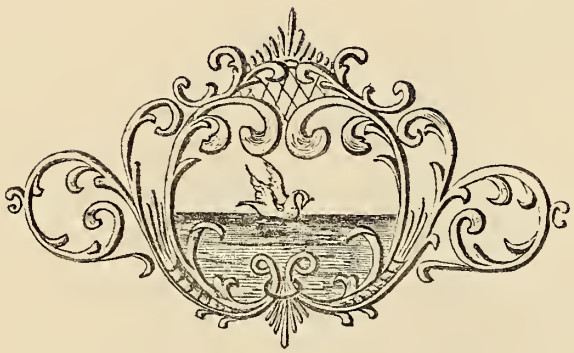


THREE-SEATED SLEIGH.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 178.

No. 1.



No. 2.

No. 3.

No. 4.

ORIGINAL ORNAMENTAL DESIGNS.

Engraved expressly for the New York Coach-maker's Magazine

Explained on page 180.

THE NEW YORK
CARRIAGE-MAKERS' MONTHLY MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, SEPTEMBER, 1862. No. 11.

Miscellaneous Literature.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Continued from page 156.*)

CHRISTMAS eve, with its pleasure, gayety, and mirth, proved a truthful precursor of the remaining holidays. All the pleasure anticipated from observation and what I had previously heard, was fully realized in these festivities, impressing on my mind with unmistakable clearness the social characteristics of the young folks of Perchville.

Young Herrington had received a speedy trial before "the powers that be," and had been awarded, in a summary manner, the punishment he so justly and richly deserved. At last accounts, to escape the taunts and ridicule of the community, he had decamped hastily to parts unknown.

The winter had passed away very pleasantly, and spring, with its green robes, and garlands of flowers, and rich fragrance, was at hand. The merry notes of the yeomanry, the lowing of herds, and the songs of birds produced fine music to the ear, creating in one a desire to roam through field and forest, through sunshine and shade, and pluck the sweet fresh flowers—the first of the season—that had sprung up to greet the coming May.

I had established a good reputation as a mechanic; so much so, that when I announced my intention of going West, my "boss" proposed to increase my wages ten per cent. if I would continue in my place. But I politely declined, having resolved to proceed with the early spring, and Harry Clifton had determined to accompany me—the first of May being appointed for our departure. Harry, having a fine education, a strong, vigorous constitution, and an energetic mind, naturally longed for the adventures of the West. Accordingly the arrangements were completed, with everything in fine preparation for the journey. Since stopping in Perchville I had been a frequent visitor at the house of the Cliftons; and now that Harry and I contemplated traveling together, I became an almost constant guest. Here I spent much of my time in the company of Annie Clifton, walking, riding, or perusing our favorite authors, and in singing and conversation; speculating occasionally upon the probabilities of future events, and promising to write frequently during our separation.

A grand excursion had been proposed, and arrangements made for carrying it into effect; the young people generally accepting an invitation to participate in a May picnic. Refreshments of every description and variety had been abundantly prepared and nicely dressed for the occasion, and by the time the sun began to warm the earth with his bright rays three wagon-loads of girls and boys set out in high glee for the river, a distance of ten miles, to spend a merry May-day.

Agreeable to an invitation, Harry Clifton and I constituted a part of the company, and as the spot selected for spending the day was directly on the line of our intended journey, we concluded to take our baggage with us, and not return to Perchville, but proceed directly on our journey by steamboat. So, loading our "plunder" and bidding our friends and Perchville good-by, we were on our way to the picnic and the West.

Two hours' drive over fine roads brought us to the river, where stately elms, towering over a beautiful greensward, formed the most lovely retreat that could have been selected for a social recreation. The day, which was most beautiful, was spent in fishing, hunting, and in gathering wild flowers; in music, both vocal and instrumental, and in dancing.

The sun had passed the meridian, and the refreshments had been served, when Annie Clifton and I walked leisurely from the merry group of girls and boys, plucking, as we went, the fresh flowers from the tender stems that grew in abundance near the path. We walked on in silence for some minutes, when Annie thoughtfully said, "You still persist in going?" As she spoke a pearly tear revealed itself upon her rose-tinted cheek, which she quickly wiped away.

"My determinations are unaltered," said I; "I did not abandon, only postponed, my journey, on stopping at Perchville. But I must confess I have entertained some hesitancy since, as you have not failed to observe. Acquaintance formed under the most trying circumstances has ripened, on my part—and, I sincerely hope, upon yours, also—into a deep and lasting affection."

Annie, pressing my hand, said, "I had hoped you

would remain here, in which event we could better repay the debt of gratitude we owe you for your former acts; yet if your determinations are irrevocable, I sincerely hope our separation may not be perpetual."

"So far," I remarked, "as I can control events, I will promise you the separation shall not be perpetual; but will visit you again at the earliest convenient moment."

We now ascended a beautiful grass-covered mound, whose summit was shaded by the spreading branches of an ancient quaking asp, whose symmetrical form, fresh verdure, and elevated position gave it an inviting appearance. Here we seated ourselves on the fallen trunk of an ancient tree, to breathe our heart-thoughts—thoughts that had hitherto been a profound secret to each other.

Annie's womanly pride seemed in a degree to have given way to her tender feelings, as she talked of the future with its thousand and one probabilities, and the various casualties and incidents which humanity is necessarily subject to during the tenure of this mortal career. A regret had well nigh stolen into my mind in an ungu[illegible] moment, that I should have made the arrangements to travel; but I spurned it from me instantly, determining to think no more of it. Thus the hours passed by until, on taking out my watch, I was astonished to find that time had worn away so entirely unnoticed—it being four o'clock. We now betook ourselves back to the company, gathering flowers and conversing alternately as we slowly proceeded, when suddenly the peculiar sound produced by the steam-whistle caught our ears, announcing that a steamer was near at hand on her downward trip. Quickening our pace, we were soon in company with our friends.

The baggage of Harry Clifton and my own had been placed in care of the old woodman at the landing, where we repaired to be in readiness. Blended together came the sound of the huge waves as they dashed upon the mossy banks, thrown out continually by the revolving wheels, and the hoarse escapement of steam, shooting up in downy clouds from the escape-pipes. The black smoke became visible above the tops of the willows, and in another instant her bows hove in sight as the boat glided majestically round the point toward the landing. The bell rung in silvery peals, echoing and re-echoing through the dense bottom woodlands. While the crew were "wooding," and the captain's mate pacing the deck with restless mien, urging the men to greater exertions, Harry Clifton and I engaged our passage to the city of Cairo, Illinois, where we intended to decide upon the further course of our journey.

The complement of wood had been shipped, and the stern command, "Let go the bow-line!" had escaped the compressed lips of the cadaverous little man who figured conspicuously under the appellation of "captain," as he strode impatiently about the cabin balustrade of the fairy-built steamer, preparatory to "heading-out" on her prospective trip—the brawny boatmen had grasped the last remaining plank—when we reluctantly bid our friends farewell and jumped aboard the boat.

The captain peered sullenly from beneath his coarse, dark eyebrows, with eyes that seemed, in the subdued light of evening, to flash very rays of fire, as he scrutinized the sluggish movements of the hands as they proceeded lazily but steadily to comply with his imperative orders. The great "stacks" continued to emit their massive volumes of smoke, curling far above to the leeward, indicative of an imprisoned conflagration gnawing and rankling in the bosom of that beautiful "thing of life," as it floated majestically on the smooth surface of the current. In obedience to the occasional movement of the ponderous engines, the great wheels would revolve on their axles, and the paddles would innocently stroke the water, as in playful mood to impress it with their unlimited prowess. Under this momentary provocation, a tremor would pervade the liquid expanse, and the angry wave would dance out and out, until the apparent frown would be transcended by a myriad of silvery dimpling smiles, and the tiny ripples would die away on the smooth surface of the limpid stream.

The boat now turned into the channel and proceeded on her course, increasing in speed at every stroke of the engines until she glided like a bird over the smooth surface of the stream. We were soon within sight of a beautiful village situated on the heights of a flood-resisting bluff, and surrounded by many objects of interest to the observant traveler. It is one of many [illegible] within the ample borders of the State of Indiana and opposite the Egypt of the sister State, Illinois. Sweeping by the [illegible] this elevated site is the Wabash, a tranquil little [illegible] on which we were traveling, which forms the dividing line between the two States and has, several [illegible] within a few years, when the "mill" superseded it, been a public highway of [illegible] to the immense granaries of wide and fertile valleys.

The boat landed at the village wharf to discharge and receive passengers and freight. While thus occupied, I had an opportunity to observe the perturbed state of Harry Clifton's mind. He stood by my side, his head slightly reclining, his eyes fixed vacantly on the distance, seemingly lost in a sad revery, apparently changed from a merry, buoyant boy to a reserved, sedate man. He afterward informed me that he had spent three years in the village, attending school, and had formed many pleasant associations, all of which rushed to his mind at the sight of the village, and it saddened his heart to think of leaving them.

From this point we traveled on pleasantly, nothing of importance occurred to mar our feelings or to arrest our attention more than to draw forth a casual observance of the monotony of events until we reached the city of Cairo. Here we landed from the little steamer, bidding the captain and others with whom we had become acquainted good-by, and established ourselves temporarily in one of the first-class hotels of the city. We soon learned the low state of business in Cairo, from a general reign of depression effected by a recent inundation of the Mississippi. Not finding prospects very good for getting into business, we resolved to proceed further. St. Louis was reputed as a very fine business place, so Harry and I resolved to give it a passing visit.

Early the next morning Harry and I were on the wharf, tracing out the destination and time of sailing of each boat on the various placards hanging out for the information of the public. Finally we found a boat purporting to sail at eight o'clock the next morning for St. Louis. So we contented ourselves to bide our time in Cairo, spending the remainder of the day in rambling about the city, and in reading the news of the day, which was abundantly supplied in the reading-room at the hotel. A number of passengers arrived on a Cincinnati boat which had just landed, registering their names as they

passed in. The desk being cleared, a young gentleman entered, and, walking to the register, turned to the date of the previous day and began eagerly scanning the long list of names. Presently, closing the book abruptly, he turned to the landlord and addressed a few words, which were inaudible to us. The landlord, however, summoned a servant, who came directly to us and inquired for Mr. Cruff; I responded, when he politely informed me that the gentleman at the desk wished an interview with me. I advanced, when he introduced himself as Lewis Sterling, at the same time grasping my hand warmly. He requested me to be silent, as his business partook of a private nature, and he did not wish his name pronounced in public. Motioning to Harry to follow, I led the way to our private room, informing my friend Sterling as we went that Harry Clifton was my friend and confidant, and any secret entrusted with me would be perfectly safe with him.

Securing the door, introducing my friends and procuring chairs were the acts of but few moments, and we were ready for the interview. Sterling then related the circumstances which brought him to Cairo.

He had procured an interest in a bank establishment in Cincinnati, which for the last few years had been doing a fine business. At the beginning of the year, the house, being in need of an assistant clerk, had procured the services of a young man, [illegible] letters of recommendation from the State of Indiana. From that time the business of the bank went on charmingly, until three days ago, when the astounding fact revealed itself that our Indiana clerk had absconded with thirty-five thousand dollars of the bank funds. Sterling then proceeded in a very precise manner to describe the fugitive clerk, and to reveal the plans adopted by the corporation for his arrest. After he had finished, Harry did not hesitate to give it as his opinion that the absconding clerk was John Herrington, the man who had disturbed the peace in attempting an assault on my person at the Christmas party in Perckville.

The name of John Herrington corresponded with that borne by the clerk while in Cincinnati; consequently Sterling manifested considerable satisfaction in the hope that Harry Clifton and myself might prove instrumental in bringing the felon to justice. Sterling stated that he had traced the flying clerk to the wharf at Cairo, where he had landed the evening of the day on which the robbery had been discovered, but had since failed to ascertain his whereabouts, or any further information concerning him. There was no time to be lost. All possible search had been made in Cairo without avail, so there was nothing to be done but look for the fugitive in other parts.

The next morning found us *en route* for St. Louis with all possible dispatch, accompanied by a Cincinnati police detective. In due course of time the boat landed us at St. Louis, and not a moment too soon either, for who should we discover, on stepping from the guard, but Herrington taking passage for Omaha City, Nebraska, to which place his baggage had already been checked. Our police officer, laying his hand on the shoulder of Herrington, very politely informed him that he was a prisoner, and that he was under the painful necessity of insisting on his accompanying him to Cincinnati, instead of going farther West.

(*Concluded next month.*)

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

(*Continued from page* 140.)

THE foregoing remarks upon the first proposition, which is on wasting leverage by the manner in which the motive power is attached, brings us to the conclusion that leverage may be gained by enlarging the wheels to any extent, but that there is a counteracting influence against this gain by large wheels, from the arbitrary fact that the line of traction to the motive-power has to correspond to the height of the team. If we make the forward wheels so large that the line of traction to the team is exactly horizontal, we have, as has been said before, gained the utmost leverage power at a time that the leverage cannot be used, nor is it wanted—that is, 90° on a road that is perfectly level; but should we encounter an obstacle that makes a wheel rise at an angle of 10° from that level, and the traction-line remain the same, as would be the case in encountering a rough solid substance, or in [illegible] sand, then, at a time the leverage would be [illegible], we shall lose one-ninth part of the power, and the heft of the wagon would be increased just in proportion as the wheels are made larger. Therefore we set down for a certainty that the forward wheels of a wagon should be made small enough so that a line drawn from the under side of the forward axle-arm should, in going to where the tugs are attached to the frames, rise 15°. This would hold a leverage power in reserve for all obstacles that would make the wheels rise on an elevation of 15°, which is perhaps as near a point to the average obstacles that a wagon encounters. From this calculation the proper size of the forward-wheels to a wagon, to gain the most leverage power, should not be less than 48 inches in diameter, nor more than 56; the variation would be necessary for the different sizes in horses. Wheels can be made either of these sizes and adapted to any wagon or carriage without inconvenience, provided we abandon an unmechanical fashion of placing whiffle-trees so high on the pole as to waste the power that the horse creates. This fashion has duped many good mechanics in a way that, I think, on reflection, they will blush to think of. I had my attention called to the subject by a Western teamster's experience, which I will relate. Before Western railroads were built he was engaged in hauling lead from the western to the eastern part of the State, a distance of nearly one hundred miles, over a continuous level prairie road. He said, when he first commenced hauling he had the whiffle-trees on the upper side of the pole in the usual way, but soon changed them to the under side of the pole, which was a great improvement, as he thought; finally he managed, by chaining the whiffle-trees to the axle-tree, to lower them six inches below the pole, and with the last change he could add full one-fourth more to his load and draw it as easy as he could one-fourth less when he first commenced. He was not alone in making these changes in the draught, but scores of others, teamsters, did the same. How different our fashionables view this subject on a nice carriage! Instead of lowering the whiffle-trees, they raise them above the natural position they would be on a straight pole, by curving the pole upwards from six to

nine inches, then placing them on the top of the curve, which wastes full one-third the power the horse creates. In this arrangement, the man sinks himself below the brute in knowledge; for the horse, when he wishes to exercise power, learns to place himself in a position that will neutralize the effects of his master's folly.

In moving a wagon there are two opposing powers: *first*, the wagon, through the influence of gravitation, exercises a power to remain stationary; the horse, or motive-power, exercises an opposing power to move the wagon from the stationary position in which gravity holds it; the balance of power in favor of the horse is of the most trifling amount providing there is no malconstruction in the wagon to waste the motive-power. The wagon acting against the horse, and the horse against the wagon, the true mechanic should exercise his knowledge and skill in favor of the horse by judicious application of mechanical laws. It is to be regretted that mechanics have not always exercised their skill so as to make usefulness their first object, and ornament a secondary consideration. In too many cases the principle has been reversed, and too often we see mechanical laws entirely disregarded for the sake of gratifying a vitiated taste for beauty, and in no case more than the manner we have adopted in hitching horses to carriages. Full one-third the power the noble animal creates is thrown away, on fashionable carriages, by the manner in which we hitch the horses to them.

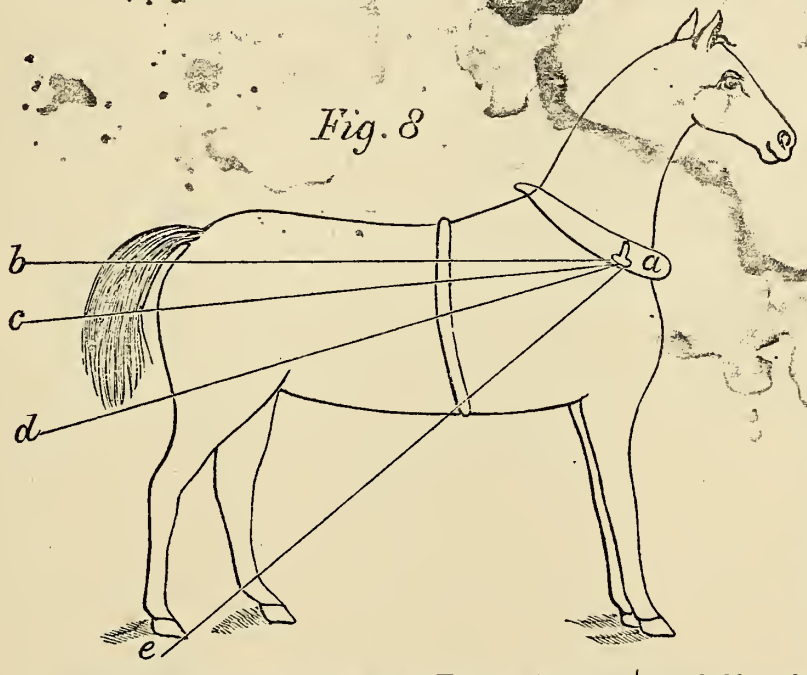


Fig. 8

We can illustrate the power lost by Fig. 8, which we will call an inanimate horse, with limbs held inflexibly in the position we have drawn them. We will place four lines of draught (*b*, *c*, *d*, and *e*) all running from the point *a* back in the direction of the respective letters. If a mechanic was asked which line would draw the horse backwards the easiest, he would not hesitate to say, the horizontal line *b* would be the one; and if the horse's legs were held in the same position when we draw back on the line, the forward part of the horse would describe a circle and turn over the hind feet. Now, if we apply the same power to the *e* line, it will not move the horse back a particle, and we may increase the power twenty fold, and it will not move him by raising the forward feet from the ground, as it would at the *b* line. The intermediate *c* and *d* lines would operate with more or less power on the horse, just in proportion as they are distant from the extreme outside lines. Then why not hitch the horse as near to the line that will have the least effect on him, in drawing him backwards, as we can? In the nature of things, we cannot bring the draught as low as the *e* line, but the nearest that we can come to it is certainly the best. The lower we get, the less effect it has on the horse, and the more on the wagon; and the higher it is raised, the more effect it has on the horse, and least on the wagon. It may be well here to inquire into the cause of mechanics adopting a fashion so entirely contrary to all mechanical laws.

Nearly a century and a half ago, William Hogarth, an Englishman of unbounded genius, published a work called "The Analysis of Beauty." In this work he proved satisfactorily that there was an universal taste placed in the human mind which made a curved line more pleasing to the eye than a straight one or one drawn with angles. It was proven and admitted that such was the law that governed every human mind, whether the individual was aware of it or not. Mechanical laws do not always correspond with our natural taste for beauty, and the knowledge of mechanical laws can be arrived at only by an exercise of the various faculties of the mind in study. It has always been, and always should be, the study of mechanics to unite gracefulness and beauty with the laws of mechanism, so far as they can be joined; but when they have to be separate, all agree that beauty should give way to usefulness. It would be very natural, in endeavoring to unite a principle or law that is placed in the human mind by the Creator, without any exertion on our part, with a law of mechanism, which is acquired only by long study and industry, that, just in proportion as we neglect our study and industry, just so much the law of beauty will take the preference of usefulness; and usefulness will be thrown out entirely by ignorance. This ignorance of the laws of mechanics has been the origin of the curve in the pole of a carriage, and placing the whiffle-trees as far as possible from the point where the draught would influence the carriage the most, and the horses the least. It has been the origin of curving the iron brace so as to lose from one-half to three-fourths of the strength, when it is indispensably necessary that every particle should be saved. The blacksmith sins the most in this respect of any of the mechanics that work on a carriage. His skill should be shown in binding the wood-parts together so that it acts as braces, and the iron should be simply ties to keep it in that position; but he is very apt to let this law of beauty influence him, to the exclusion of all mechanical laws. To prove this assertion, let us turn to Vol. III., Number Four, Plates 12, 13, and 14, of this Magazine, and examine the engravings for sleighs, and notice the

braces to the knees. Out of five, we have only one—the Portland Sleigh—but what the knee-braces are curved so that a large proportion of their strength is thrown away, and at the same time the body is so arranged, that if the draught of the sleigh which comes on the knees that are supported by these braces, draws them one inch out of position, the body panels will draw out of the grooves to the raves, as we all frequently see them do. The Portland Sleigh has two stay-irons running from the knee straight to the runner. The draught that comes on to the knee is communicated to these stay-irons lengthwise, and being straight they can in no way lengthen the stay without drawing the irons in two, while either one of them would resist a strain of over one ton, the knee operating as a brace. To my mind, this Portland Sleigh, if light and substantial, will do twice the service that any of the others will. Should it be objected that this style is not fanciful enough, let them turn to another Portland Sleigh in Vol. II., on Plate 13, of this Magazine, and they can see how easy it is to unite all the lines of gracefulness and beauty with this style of ironing. If there can be any fault found with it in any way, (excepting the draught), it is certainly not by me. This sleigh is a perfect combination of Hogarth's lines of "grace and beauty" joined with the principles of mechanism, so that the utmost amount of beauty, strength, and convenience are secured.

In order to secure the elevation of the traction-line to the hind-wheels sufficiently, they should nearly correspond in size with the forward-wheels; and the perch, or whatever connection they have to the forward-wheels, should be raised where the motive-power from the forward-wheels is attached to them, so as to be on an angle of 15° from a horizontal line drawn from the under side of the hind axle-arm, or as near that point as can be. If any one doubts the power gained to overcome obstacles by raising the traction-line to the hind-wheels, they can easily try an experiment which will convince them. Take a buggy, or any four-wheeled carriage that one man can handle, and draw it to your shop-door, where the door-sill and floor are raised six inches above the ground; draw the forward-wheels on to the floor, which will raise the line of traction to the hind-wheels six inches; now draw the hind-wheels on to the floor, and notice the quantity of power that it requires to do so. After you have drawn it into the shop, place a block of six inches height before the hind-wheels, and you will find that it will take more power to draw the hind-wheels over the block than it did over the door-sill.

The foregoing remarks upon the lines of traction, which have become more lengthy than was intended, can be summed up in a few words. The team—which is the motive-power—can use the most motive influence on the wagon when the motive-power is applied at an angle of 90° from a line running from the axle of the wheel to the obstacle, and the motive-power becomes less on the wagon as we decrease that angle. The resisting power which the wagon has on the team is the greatest when the traction-line from the wagon to the team is at an angle of 90° from where the horse places his foot on the ground on a straight line along his leg to where the joint intersects the body; and the power decreases on the horse just in proportion to the decrease of the angle. The horse soon learns to decrease the angle by placing his feet backwards from his body, to such an extent that an old draught-horse will almost bring his body down to the ground in hauling a heavy load. The science of mechanism should be used to hold the line of traction as near 90° as can be on the wagon, and decreasing it as much as can be on the horse.

Our *second* division of the subject—that the motive-power is lost by placing the wheels in such a manner that they become cramped, thereby creating unnecessary friction—is of itself a very plain one, and it seems strange at first thought that there should be such a diversity of opinion about it. The difficulty is occasioned by what is termed the gather to the axle—that is, turning the points of the axles a little forward, so that it holds the wheels in such a position that they are inclined to run together, were it not for a constant crowding from the collar that keeps them apart.

Let us inquire what the gather is given for. The advocates of the gather say that the wheels have a tendency to run off to the nut, and the gather is to give them a counteracting tendency to run to the shoulder. All will agree that the forward side of the wheels can be brought so near together that they will not turn on the axle when the wagon is drawn forward, and that to turn the forward side of the wheels to the same angle outward will have the same effect. Again, they will agree that to incline these wheels either in or out, towards either of the extreme angles—just in proportion as they are inclined they meet an impediment to turning, until at last they arrive at the point where there is no force applied to the tread to turn them. From these facts we arrive at the conclusion that the straight-forward course is the medium point, and that a deviation from that point, for whatever purpose, is an obstruction to the motive power. It is true the straight-forward course will not counteract the tendency which wheels have to run to the point of the axle, but the remedy is also an impediment to the motive-power of the wheel, which creates just the amount of unnecessary friction at the shoulder that it would at the point on the nut.

The present fashion of tapering the axle-arm and box shows plainly that at some time it was invented to correspond with the dish of the wheel; and as mechanics have lost sight of that *necessary correspondence*, they have run into all manner of errors. The gather in the axle-arm never gives any relief of friction, but in most cases it aggravates the trouble still more. So far as my knowledge goes, those who advocate the gather to the wheels turn the point of the axle forward in just as many cases, when, according their own theory, it ought to be turned back, as they do when it should be turned forward.

The truth is (as I believe), axle-makers and wheel-makers are working entirely in the dark by not knowing that the original invention of the taper to the axle-arm and box was intended to correspond *exactly* with the dish of the wheel, which would entirely do away with any tendency which wheels now have to crowd on the collar or nut of the arm. In what we call the cast-iron thimble-skein, the taper to the arm and box is in proportion of $1\frac{1}{4}$ inch taper to one foot in length. In order to give a four-foot wheel a corresponding dish, it would be necessary to give it a dish of $1\frac{1}{4}$ inch. This would make the wheel stand on a perpendicular spoke, and the axle-arm on the under side would be exactly horizontal and at a right-angle to the perpendicular spoke, all of which is necessary to make the bearing equal at the shoulder and point of the arm. It is absolutely necessary to give a

wheel as much as 1¼ inch dish, to get the utmost strength and service from it, but wagon-makers do not generally regard it so, and it is hard to persuade them to make wheels with more than one-half that dish. The consequence is, the axle-arm must be raised $\frac{5}{16}$ of an inch, on the under side, above a horizontal line, in order to make a wheel stand on a perpendicular spoke, which, as has been said, is absolutely necessary. The raising the point of the arm $\frac{5}{16}$ of an inch higher than the shoulder, gives the wheel a slight inclination to seek the highest point on the arm, which occasions an unnecessary friction on the nut, to just the amount of inclination that is given to the wheel to rise on the arm. Wagon-makers, noticing this tendency, have endeavored to prevent it by the gather; but it is introducing one obstacle to the motive-power to counteract another, which only makes bad worse, for they are sure to throw twice as much pressure on the shoulder as was on the nut.

The taper to the wrought-iron axle is of an entirely different proportion to that of the thimble-skein, being in some cases ½, and in others ¼ inch to the foot, and some patterns do not give any taper. Wheel-makers do not pretend to make the dish of the wheel correspond to the taper; therefore the point of the axle, in most cases, turns down lower than the shoulder, which gives the wheel an inclination to seek the higher point, at the shoulder or collar. Those who practice giving the gather to the arm are just as ready to do it in this case as any others.

This tampering with axle-arms has been the cause of more impediments to the motive-power than any other, excepting the raising of the draught above the line of traction, as any one who has had experience in overhauling old carriages must have observed, by the appearance of the end of the box next to the collar being worn more than at the nut, which sometimes seems as though the builder intended the collar for a drill to bore the box out of the hub. The wear at one end of the box more than the other always implies unnecessary friction, for there is no necessity for a wheel to crowd any more to the shoulder than the point. When the wheels are made to run straight forward, without any predisposed inclination to run to the right or left, there can be very little wear at either end of the boxes. When a wagon runs with one wheel lower than the other, the axle-arms will slide toward the lower side until the nut on one side and the collar on the other restrain their downward tendency; yet, whatever weight is thrown on the nut and collar, it takes just the same amount from the longitudinal weight on the axle-arm, so that in fact there is but a trifle more impediment given to the motive-power than if the wagon was on level ground. The wear on the collar and the nut on the opposite sides of the axle is equal.

Far different is the effect on wheels when they are inclined to run together. In this case there is a continual crowding on the collar, but it does not take a particle of weight from the arms on the boxes.

(*To be continued.*)

LATIN FOR LOAFERS.—In recent excavations at Pompeii, the workmen found, on the walls of what was probably an ancient chariot-maker's workshop, the following notice: "*Otiosis hic locus, non est. Discede, morator!*" which, translated, means, "This is no place for idlers. Loafer, clear out!" How appropriate for the walls of some modern coach-makers' shops!

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Continued from page* 160.)

INTERESTING and instructive as this whole history is to the coach-maker, yet no period will be of such deep interest as that from 1775 to 1805, because, having been written by a member of the craft, it is furnished to us by a practical hand, in all its minuteness. We have therefore gone to much expense in presenting graphic miniature pictures of the principal carriages then in fashion, that the reader may have a full understanding of the progress of the art, as well as of its history at that time.

We have said that the curricle and whiskey, or gig, still maintained their popularity. The improvements in the former during twenty-five years may be seen when we compare Fig. 35 with the one numbered 28, on

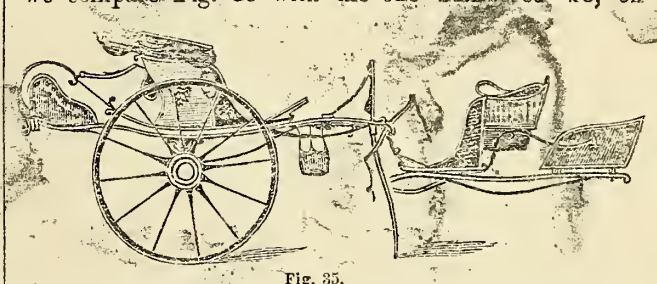


Fig. 35.

page 125. The form of the body is not much different, but the C springs and compassed or bent shafts of ash are much more graceful. Here, too, first appears the toe-spring (called in England the elbow), still retained in many of the gigs turned out from modern shops. The "rumbler" has been shaped to accommodate it to the C-spring, and the step, as a further improvement, is booted with leather, and a cap put *over* the axle-nuts. That old sword-case of our boyhood "sticks out" *in all its magnificence.* The charge for a new curricle was £94, or about $455.

A cotemporary writer says of the jaunting-car in 1805 (Fig. 36), "This sort of carriage is quite novel in

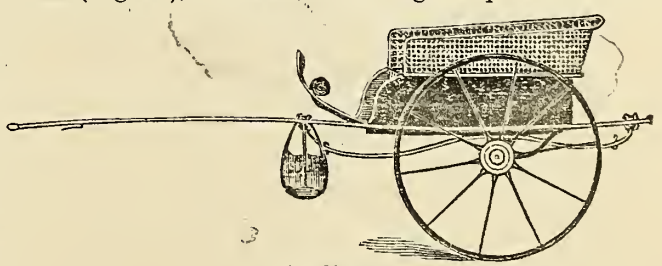


Fig. 36.

this country [England], but from its convenience is likely to become general. Its construction is light and roomy, with seats all round, and a seat in front for the driver, *which mostly is the proprietor of it.* [Note the passage we have italicized.] It is capacious enough to hold from four to six persons besides the driver, and so light that one strong horse is sufficient for the draught, though another may be added, either abreast or, as a leader, in the manner of a tandem, if required. It is a carriage well adapted for a party on pleasure, or as a family airing carriage in parks, &c., and supersedes the sociable. It may have a head, if required, but everything that gives weight

should be avoided. The hanging is represented by long double-elbow springs, extending from the fore to the hind bar, but the body must be framed on the carriage [shafts], and have only grasshopper springs under the shafts, which will be both lighter and cheaper, but not so elegant or easy. There is in general no lining or stuffing inside, only cushions for the seats, the bodies being generally caned, but are sometimes railed or paneled. They are of various forms, but principally backed." The cost of the finest description of a jaunting-car was about $234.

In Fig. 37 is represented *the original* of all the barouches found in England, or America since. It is the

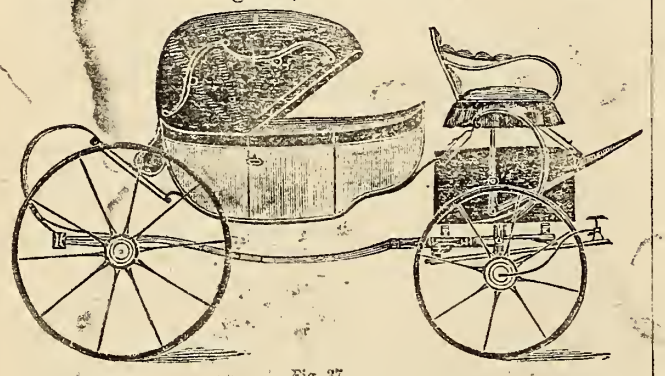


Fig. 37.

counterpart of an old German vehicle introduced into England about 1802. It was very popular soon afterwards, and was much used by the "sporting bloods" of that period in visiting the race-courses, when the proprietor generally acted as driver for himself, having in such cases a shifting dickey-seat provided for that purpose, as seen in the illustration. One striking peculiarity in the ironing is, that the hanging-up loops are continued the entire length of the body, on the lower edge of the bottom-side. This gives a strength and solidity to the whole, which was highly gratifying to the public at a time when the people were less regardless of danger than in modern times. The step is folded up *inside* of the body. The price of this barouche was £200, or $968.

Landaus and landaulets have for many years been popular with the English aristocracy, their peculiar construction enabling the occupant to transform it from a close carriage to an open one. At the period our history refers to, these were the most fashionable carriages in use, almost entirely superseding the sociable (Fig. 27), given on page 124. These were made with rising seats and bottoms, to "elevate" the passengers, and did not differ much in other respects from Figs. 34 and 35, previously given.

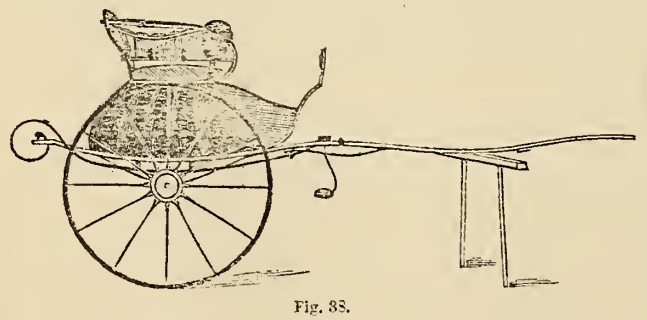


Fig. 38.

A very singular vehicle was used as a dog-cart, in 1804, a representation of which is here given (Fig. 38). These "Telegraphs" were made after different patterns, with large bottoms for the stowage of the dogs used in hunting. Some bodies were full paneled and fancifully moulded off, and nearly all *built upon the shafts*, in the manner of the jaunting-cars. We have illustrated the most fashionable style, the lower part of the body of which is made after the prevailing design for a Salisbury boot to coaches, and furnished with what was called the barouche seat. Our example is hung on four long steel springs, two attached to the carriage-part, parallel with the shafts, and two to the body parallel with the hind and fore bars, uniting at their extremities by cross-shackles. Some others were hung with long bottom-springs to the body, and with short scroll-springs to the carriage-part, having long braces from the jacks behind to the loops forward. The price was £64, or about $310.

The reduction of the duty on carriages, before spoken of, increased the demand so as to give a new impulse to this branch of business. This had the effect to raise the price of all material entering into the composition of carriages, nearly 15 per cent. over former charges.

That our readers may know the opinion our ancestors in the trade entertained of the class we call venders of cheap work, we give entire Felton's remarks "on the purchasing of second-hand or new carriages, which are built on speculation," from which it will be seen that fools existed *then* as now in the community:

"The encouragement given by the public to repositories has induced many persons no way connected with the trade to speculate in supplying them with articles of the most abominable kind, and which may properly be termed gingerbread carriages; and now that a change has taken place in the fashion, a fresh opportunity presents itself for vending their gay, painted trash; and though many have bought experience from those places, yet a caution is necessary to prevent those who have not yet been taken in by them.

"Those places are principally supplied by persons working in garrets or kitchens, who vamp anything up for sale that can safely go in and out of the repository without failure; and many old carriages which ought to be broke up are dressed up in a fashionable style, and frequently sold there for as much as would have purchased a new one from a coach-maker. The facility with which gentlemen are supplied, induces them to attend those places; but, as caution is necessary, none should purchase from them except on the recommendation of a respectable tradesman, in particular those new-fashioned fitted-up carriages.

"Gentlemen, likewise, who are unacquainted with the fraudulent practices of those places, are induced to send their old carriages there for sale; but, unless a price is put on them as the repository keeper thinks will put an extraordinary profit in his pocket, it may stand till the expense thereof amounts to its value, when it comes into his hands without his advancing a shilling; as their own stock, or that of their regular customers, is always certain of having the best recommendation, although not half the value of the others.

"It may appear incredible, but can be affirmed on oath, if desired, that carriages to a superficial observer shall appear alike in every respect, and one shall cost nearly double the sum which the other did. Hence arises the opinion that the repositories are cheaper than the manufacturers; but the one, having credit to preserve,

builds of good materials; the other deals for ready money only, *and mostly sells his goods and customers at one time.*"

Thus we have endeavored to make our history both entertaining and practical, and for much of our success in the detail the writer is indebted to that genuine lover of truth, William Felton, coach-maker, No. 3 Wimple street, Cavendish Square, London, the third and last edition (now extremely scarce) of whose Treatise on Carriages and Harness was published in 1805, in three volumes.

At this point we are persuaded to wander a little from our subject, and make a few observations in the shape of contrast between the advantages England has been favored with over our own country. It is now about three hundred years since England has been practicing in the manufacture of carriages, it being about 1560 when Queen Elizabeth first appeared in a coach, to the great astonishment of her loyal subjects. The Plymouth colony landed here in 1620, and it was nine years after that event before even a "wheelwright" came to our shores (see Volume Two, page 181, of this Magazine). As a dependency of England, and burdened with the trials and perplexities incidental to the settlement of a new country, the coach-maker's art was in very little demand; and down to the period when our revolutionary history begins, the difficulties in the way of progress were discouraging. It must be admitted that, for the development of any special branch of art, a demand for its productions must arise in the community. This could not be looked for in a country still overrun with luxuriant forests, where the only *roads* in existence were those traced by the ax in the back of trees. Besides it was not for the interest of the mother country that carriage-making (as in some other of the arts) should flourish in her colonies. These facts show that our transatlantic brethren have had over two hundred years the start of us in coachmaking.

Although the Revolution inspired us to look to home resources for luxury and comfort, it was at least forty-five years before the American carriage-maker was released from his obligations to England for a part of the parts that go to form the perfect carriage. In or about 1820 we bid adieu to ready-made English springs, since which everything is made among ourselves. Fifty years, then, of American practice, against three hundred English, is the condition of trade in the two countries. How much reason our transatlantic friends may find for exultation, when contrasting their own carriages with ours, may be fairly weighed in view of the above facts, and found unworthy of a candid people. At a future time, when writing our own "Rise and Progress," we may find opportunity to pursue this subject further, and show that we are equal, if not in advance of Europe, in carriage-making.

(*To be concluded in our next.*)

CRITICISM ON COACHES IN 1634.—Here is a proclamation comeing forth about the reformation of hackney coaches, and ordering of other coaches about London. Nineteen hundred was the number of hackney coaches of London—base, lean jades, unworthy to be seen in so brave a city, or to stand about a King's court.—*Strafford's Letters*, vol. 1, p. 266.

Home Circle.

For the New York Coach-maker's Magazine.

IS IT TO-MORROW YET?

BY LUA DELINN.

"Is it to-morrow yet, and are we going
To have a day of sunshine and of glee?"
A little child, her arms about me throwing,
Lisping the words, this question asked of me.
"Is it to-morrow yet, and shall we play,
And laugh, and sing, and have a long bright day?"

Yes, darling! Yes! it is the bright to-morrow
Of which we spoke to thee on yesternight;
Free as thy heart from e'en a thought of sorrow,
The sky from clouds, and as thine eyes 'tis bright.
Go laugh and sing! Another morrow may
Not realize the promise of to-day.

Is it to-morrow yet? A simple question,
That none, you say, but *childish lips* would frame.
'Tis true, sage friend; yet pardon the suggestion,
That *older hearts* have often asked the same;
And *yours*, in fear, in gladness, in regret,
Full oft repeats, "Is it to-morrow yet?"

It may be you have paused when life was flinging
Around you all the glories of its harvest time,
Some passing cloud, a transient shadow bringing,
Made you forget that 'twas the summer's prime.
Your *faint heart questioned*, while your lips replied
'Tis yet *to-day*, its glories shall abide.

You've watched and waited through a night of sorrow,
Whose gloom was unrelieved by e'en a star:
How gladly you beheld the dawning morrow,
When first it glanced upon you from afar,
And asked, "To-morrow yet?" Ne'er deny it,
Your heart *did* question, though your lips were quiet.

'Twas only yesterday you had a vision
Of glory lighting up the morrow's track:
Is it that morrow yet? How like derision
The question sounds, as it comes echoing back—
"What morrow yet?" "What morrow?" Hush the sound!
Darkness above, and darkness all around!

For the New York Coach-maker's Magazine.

THE GIPSEY CAMP.

BY ANNIE M. BEACH.

"NELLIE, the gipsies have encamped two or three miles out of town, and I say let's drive out after tea and have a glimpse at them; what say you fairy?"

"O delightful! delightful! why you're the best cousin in the world, Harry; how comes so many fine ideas to crowd your brain? I will be ready at precisely the right time,—see now!"

"If Nellie is ready at the exact time, it will be a wonder," Harry said to himself as he walked down the flower-edged path, and he thought of the many times he had waited at concerts and parties, just while Nell said this or that to some one. But then she was always so sorry she had detained him, and called him her good cousin in such a winning way, it always atoned. "What sort of a wife would the child make," he thought to himself, "and would she ever learn to think?" then he half resolved

that very evening to ask her to be his. So the hours of the sweet summer day glided down to the gates of the west.

"Why, Harry, how early you are! but I'm almost ready now; you're so kind to always wait for me," and as the little fairy glided away, she thought, "will he always wait for me? or will he some time lead another to the altar?"

On a mossy bank sat the gipsy fortune teller. "I have always shrank from having my fortune told, Nell," Harry said; "however, as you like about your own, of course we need not believe what we do not like." So Nellie gave her hand to the Sibyl. At first her words were low and unintelligible, then she spoke in a clear, shrill tone. Her eyes were wild and fiery, and the young girl shrank before their steady gaze. "Maiden," she said, "there is mystery here, and a great event in your life is near at hand. Young man, beware!" and her fiery eyes were fixed upon Harry Sinclair. "I see more," she continued; "Don Victor, come hither! the fate of the maiden is linked with thine."

"Let me go," cried Nellie. "Strange woman, let me go!" but Harry Sinclair stood spell-bound. By this time the gipsy king had entered the tent, and stood before them. Young he was, his figure tall and handsome. His brow was dark, and an expression of sadness rested there. From under his crimson cap of state the brown curls fell, and touched his shoulders. How beautiful! the exact match of Nellie's; and when his large, dark eyes met hers, the look of fear vanished from her face, and she smiled. "I will stand this no longer," Harry said hastily, and his voice was husky. "Nellie, we will go;" and as though she were a child he lifted her to the carriage.

Few were the words spoken on the home drive, for Nellie was thoughtful, and Harry almost petulant.

"Papa!" said Nellie, at the breakfast table next morning, "Harry and I rode over to the gipsy camp last evening, and then Harry wouldn't let me stay to have my fortune all told. Won't you take me this morning and have it completed?" "Why wouldn't Harry wait, pet?" said her father. "O, she said, my fortune was linked with that of their handsome king, and"—"and that was enough for Harry," said her mother, archly. "Stop, now," said Nellie. "Will you take me out, papa?" "Perhaps so, pet; but what is the name of your hero?—do you remember?" "Don something," said Nellie, dreamily,—"oh, Don Victor; that was what they called him."

Victor! None but those who have heard the name of a lost one lightly spoken can tell how that sound sank to the hearts of Mr. and Mrs. Sinclair. It was years ago; he would have been seven years older than Nellie had he been spared them. Was he dead? A curly headed boy of three years, he had been stolen from them as they traveled in a foreign land, and money had been spent, and journeys made, and prayers offered, and yet no tidings had ever reached them. Was he dead? Oh, how our hearts cling to the fainted hope!

Most of the gipsies were out when Mr. Sinclair and Nellie entered the camp, but a dusky form pointed them to the private tent of the king. Don Victor rose as they entered, and removed his white plumed cap; his crimson mantle fell to his feet; were they in "enchanted land?" Nellie's eyes wandered around the tent; there were books, and paintings, and half-finished sketches. She glanced at her father; he stood as one bewildered. Don Victor motioned them to seats. "You are surprised to find me thus," he said, "and your looks ask for an explanation. What seek you?"

"The lost among the living," replied Mr. Sinclair. "More than twenty years ago my son was stolen from me by a gipsy band; oh, answer! do you know aught of your history? for, if your looks deceive me not, you are not of gipsy birth."

For a moment the young man hid his face in the folds of his mantle, and then stood before them, pale, almost, as the plume above his brow. "You are right," he replied, "by birth I am not a gipsy. Long years have I sought in vain to solve the mystery which holds me from home, and those whom in fancy I have learned to love;" and as he spoke he drew from his girdle a golden chain, and presented a miniature. "It is all I know of my name or history. My portrait when a child, and that of my mother, and our names carved together upon the lid,—Helen and Edward Victor Sinclair."

Need we tell of the scene that followed? "My son, my long lost Victor, I am your father, Edward Sinclair, and this your sister." "My own dear brother!" and with a cry of delight, Nellie sank into the arms that were open to receive her.

There came a stifled groan from the tent door, and but for the interposition of his uncle, Harry Sinclair's well-aimed revolver would have sounded the death-knell of Don Victor. It is useless to repeat the explanation, or tell of the days of rejoicing that followed. We will leave them.

Yet once again. It is a June evening. There is music and mirth; the young and beautiful are gathered together. We will enter. Twenty summers have passed lightly over the head of the fair bride, Nellie Sinclair. She is three years older than when last we saw her; Nellie Sinclair still, for it is cousin Harry who has waited so patiently for her to be ready to wear "the ring of gold," and speak the marriage vow. "How is it, Harry, have I the honor of kissing the bride to-night? or is that revolver still at hand?" so says Victor Sinclair as he comes forward to greet them. "Please, now, Victor, do not expose me," the young husband replies, and then adds in a lower tone, "wait till you find your blue-eyed Gracie weeping in the arms of a handsome stranger, and *then judge me.*"

Pen Illustrations of the Drafts.

SOCIABLE PHAETON.

Illustrated on Plate XXXVII.

Phaetons of this kind furnish a very convenient vehicle for summer watering places, or the pupils of boarding schools, as the passengers are brought face to face for conversation, rendering them a very "sociable" means of travel. Our draft has been Americanized from an English one sent us by our very kind and attentive friends, Messrs. Atkinson & Phillipson, at Newcastle-on-Tyne, to which firm we are under many obligations for favors shown us. Some term this a Picnic Phaeton,

but our English friends before mentioned called it a waggonette. The construction is simple, and requires very little expense for trimming. The cane-work may be either real or sham. The under-carriage should be painted some light color.

DEEP-SIDED BUGGY.

Illustrated on Plate XXXVIII.

THE civil war going on in this country has without any doubt worked great changes in the designs for buggies. Very little demand is now made for heavy work, as it involves a great outlay in expense; but the cost of a buggy comes within the means of almost any one, and the call for them has produced a variety suited to the popular taste. One of the latest types of these light vehicles is here presented. The side of the body is 5½ inches deep, 3 feet 11 inches long, and rounded at the corners. In our example the back of the body is left open. This open space is frequently supplied with a leather or enameled cloth boot knobbed to the under part of the seat and the body. The seat is paneled with round corners. This has now nearly superseded the stick seat in all the city-made work. The top is finished with festoon fringe, manufactured expressly for the purpose, and is a good and tasty substitute for the late sun-curtain. Thomas' patent top-prop is extensively used, as the unsightly T portion is hid beneath the leather. The prevailing fashion is blue cloth with corded patent-leather as a substitute for laces in the cushions and fall. The inside of these seats is usually painted. Striping is in many instances laid with gold-leaf, which increases the cost about $10, but most frequently the carriage-parts are finished without striping of any kind.

THREE-SEATED SLEIGH.

Illustrated on Plate XXXIX.

WE are indebted to our esteemed friend Mr. J. R. Gilman, of Skaneateles, for the sketch from which our drawing is taken. It represents a very pretty three-seated sleigh, with top, fitting it for winter travel. In addition to the draft, which well explains itself, the reader is referred to the remarks given on page 68 of Vol. III., for further explanation, as, in the general detail, those there printed will be found equally applicable in the present instance.

Sparks from the Anvil.

SHORT-TURNING CARRIAGE-PART.

FIGURE 1 represents a short-turning carriage-part, which is effected by the use of fifth and sixth wheels coupled in the center by iron braces. These iron braces move between two S-shaped iron plates, a horizontal or

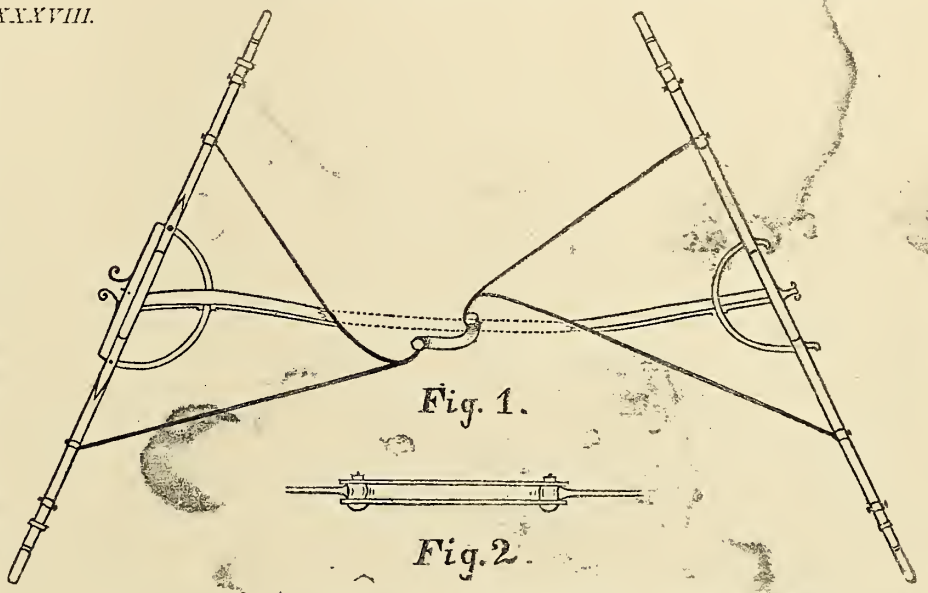


Fig. 1.

Fig. 2.

side view of which is shown in Fig. 2. These braces operate like a cross-perch and move *underneath* the perch, which, being in part removed in our diagram, is supplied by dotted lines, thus showing plainly in the picture that which in practice would be hidden. We are not aware of any patent on this invention, and believe it is free for the public to use.

TIGHT NUTS.

As our readers are aware, the nuts of bolts, from long exposure to the elements, often become so immovable that it is impossible to unscrew them without "twisting off" the bolt, thereby rendering it worthless, and entailing the expense of a new one on a customer. The above remarks apply to cases, in repairing carriages, where to remove a bolt with the nut on is impracticable. Every blacksmith knows that where the wood part is already destroyed he can cut such out, and, by heating the end of the bolt, remove the nut easily. This is due to the fact that the hole in the nut expands more than the point of the bolt. It may be something worth being reminded of to the *honest* coach-maker to say that a heated iron brought in contact with the nut so as to expand it, will generally loosen it so as to be easily removed by a wrench. In many cases where the use of a hot iron would injure the paint, a cloth soaked for a few moments with a steady stream of boiling water, will effect the same object, particularly when taken off in cold weather. A little lamp-oil should be applied to the end of the bolt to facilitate the turning off. Where the nut can be saturated with oil, and allowed sufficient time to soak, the desired result may be effected in most cases without resorting to the hot iron.

Paint Room.

For the New York Coach-maker's Magazine.

HOW TO PAINT A CARRIAGE.

(*Continued from page* 164.)

In selecting an ornament, the painter will know how to appreciate the worth of this publication, if he never does at any other time, for it would be worth the yearly price of the magazine to design and draw any one of the many ornaments which we have there, as neatly and as ready for use as they are engraved.

Take a piece of thin, transparent wrapping paper and oil it over with linseed oil until it has become saturated, then rub off all superfluous oil, and afterwards lay the paper over any one of the ornaments which you may select, and with a lead pencil trace neatly all of the ornament, not leaving out any of the shades, just as it is in the engraving; then turn the paper over on to a piece of white paper, and on the other side trace the same engraving, which will appear very distinct on the other side of the oiled paper. The panel which you wish to put the ornament on must be dusted over lightly with whiting if you intend to put any gilt in it, to prevent it from sticking to other parts of the work where it is not wanted, then have the panel put into a horizontal position, and lay the side of the ornament which you draw last, on to the place where you want it painted, and fasten it there by laying some small weight on the side of the paper from where you wish to work; then with your pencil trace over the lines again on all the design except where you intend to put the gold leaf; this part needs only to be traced on the outside of the design. The result of this operation will be that tracing the design over on the paint will crowd the pencil mark down on to the paint, and will stick as plainly as though it had been drawn there with the pencil. The side of the paper can be raised to see if you are working all the drawing on the panel; if you do not remove the weight the paper will fall back to its original place.

After the design is drawn on the panel, take some quick-drying varnish, and with a common sable artist's pencil, lay some varnish on the spot where the gilt is to be put, and after the varnish has got hard, and yet a little taek to it—which will be in an hour or two—then lay on the gilt, press it down on to the paint so as to have it adhere. Leave it for three or four hours, if you can conveniently; afterwards rub it down with some soft buckskin or a silk handkerchief, and then lay the design on to the gilt, which you can very plainly see to do, and with the pencil draw the shades the same as before on the gilt. This will give you the design of what you want to put on for an ornament so that you can see it very distinctly on any color, and all the painter will have to do will be to color and shade it up in a proper manner. For this ornamenting you want artists' sable hair pencils from the smallest size up to four or five sizes above. The shade which seems the most appropriate for gilt, is a transparent brownish color, which is got by mixing burnt terra de sienna with black asphaltum, varnish, and enough oil to keep it from drying too quick.

Commence shading the gilt by putting on the deep shades as they are in the engraving. With the same paint lighten it by spreading the paint thinner on the gilt, as the parts which are to appear the most prominent must not be touched with the paint. The points of scrolls which turn over so as to show the other side, can be tipped with orange colored paint, lightened up with white, or frequently with some other color which fancy dictates. The painted part of the ornament must be painted for the groundwork with the color directed, or as your own judgment may dictate. Shade with the same shades you have used on the gilt, or perhaps made a little more opake by adding vandyke-brown, lightened up with white if the case requires.

A very tasty ornament can be made by putting the groundwork of any of these ornaments wholly of gilt and shading according to the above directions. Those who expect to excel in ornamenting should have some knowledge of perspective, which can be had by consulting the Oxford drawing-book, or perhaps almost any other work on that subject; yet to those who do not aspire any higher than to use ornaments that have already been engraved, the above process will be sufficient.

To arrange the colors in striping, there are a few rules that should always be observed: The darkest color should be on the outside. If a carriage body is to be of two colors, the outside moldings should be a darker shade than the panels. It is not considered in accordance with good taste to put much striping on a good body; as a general thing, one fine line is sufficient for a panel, but, if it is necessary to put on any more, the fine line must be nearest to the centre of the panel, or on the inside of the wider stripes.

There cannot be any precise rule laid down about mixing the paint and oil for striping, and yet it is one of the most important things to have the stripes run on the work easy. If there is too much dryer in the striping it curdles and will not flow over the place where it has been laid, and when it is dry the body paint can be seen through the striping. I practice using boiled oil for wide line striping, with one-eighth turpentine, and for fine lines raw oil without any turpentine, and just as little dryer as will suffice to make the striping dry in time. For both kinds be careful about working the paint too thick. Take time to get the striping so that it works easy, and you will save time before the job is done. Where there is but one line on a panel, it is better not to mark it with the dividers, but to trust to your eye to get it correct; but new beginners may have to mark the line until they get a full command of the hand. Where there are two or more, it will always be necessary to run the dividers on one side of all the lines so as to keep them the same distances.

For a gilt stripe, which is necessary for coaches, sleighs, &c., it is better (in my opinion) to use varnish to lay the gilt with; and if the varnish dries too quick, a little raw oil will correct that and make it more tacky. The difficulty in fat-oil for laying leaf is, that it often spreads over the edges of the stripe, and also, it has too much body, making a ridge where the stripe is. It seldom looks well to see a stripe on a panel intersect another stripe at right angles in the corners, especially where there is but one line around the panels. Some shift is most always made to make the corners round or scalloping.

The carriage-part can be striped more than the body; and small tasty scrolls, put into proper places, has very much the effect to fill up, that an ornament has in the center of a large panel; yet this part is often overdone with stripes. Great care should be taken to make the

stripes true, and to preserve, as has been before said, the beauty of form in the carriage. Preserve the same style and colors as near as can be, with the body and carriage-part.

There is a class of painters who stripe to imitate striping, and all that can be said of their work if you see it at a distance, is, that it *imitates* striping; but, if you come up close to it, you see that they have given the work no additional grace of form, but, on the other hand, where they find room to cut a "gim-crank," *they go into it*, although they change completely the form of the work which the builder intended to show. Their ornaments generally have what would be termed the lines of gracefulness, therefore a superficial observer frequently thinks the painter is all right. These men have very much the reputation that the quack doctor had, who doctored all the fools and made money, while the regular M. D. starved, doctoring the wiser ones.

I use what is called "camel's hair" pencils, and, perhaps from habit, cannot use any other kind for striping. Long sable hair pencils are more elastic and stiff, the hairs are straighter, and will keep so a longer time, and the pencil will last enough longer to nearly pay the odds in the price; and if the painter can work with them the best, certainly there can be no objection to using them. I find as much difficulty in changing from the "camel's hair" to the sable-hair brush, as in changing from the quill to the metallic pen. A pencil brush should be from one and a half to two inches long, and when not in use should be cleaned out with turpentine, dipped into lamp oil, and laid carefully away on a window-glass, in such a manner that the hair will keep perfectly straight; and when you want to use them, wash them out in turpentine and twirl them between your hands until they have thrown out all the lamp-oil and turpentine, and they will be ready for use. We cannot find brushes in the stores small enough to make the fine lines. This can be remedied by cutting away some of the hair, or you can make small brushes from a large one, by taking a piece of rattan and making it round, about the size of a pencil handle, and splitting the end into quarters; then turn these split parts back and cut off the corners so that when they are turned back there will be a hollow; where the corners are cut out, put what hair you want into this hollow space from a larger pencil brush, and fasten it by winding a thread around the stick; wet the string with glue, and you have a very good pencil. H. H.

(To be continued.)

SECESSION AND TURPENTINE.

SPIRITS of Turpentine, which formerly sold for 62 cents per gallon, at retail, has in consequence of secession —it being furnished chiefly by North Carolina—become excessively scarce and dear. The United States Marshal for this District lately disposed of a portion of the cargoes of five captured prize vessels, consisting of 1,100 bbls. of turpentine, at auction, for $2.13½ per gallon. Another lot of 187 bbls. brought $2.31 per gallon.

ORIGINAL ORNAMENTAL DESIGNS.

Illustrated on Plate XL.

No. 1.—Paint the body and crown of the head brown, shading with yellow; the nose and breast white, slightly shaded with drab; the mouth red; the bell pale blue, dotted with white and black; the cord equal proportions of burnt sienna and white; the roll blue, green, and white. —Contributed by Mr. Heimbach.

No. 2.—For this fine design we are indebted to Mr. L. M. Worden, of Tully, New York. The scroll-work may be laid on a metallic ground, or painted in relief; if on the metallic ground, shade with asphaltum and raw sienna; the net-work at top, gold; the water scene, light blue in front, and darker blue shading in the distance; the swan an imitation of nature.

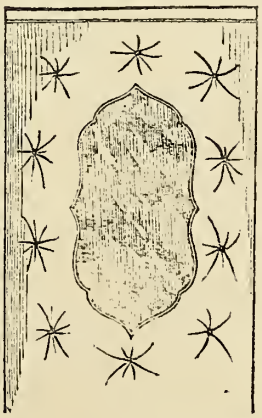
No. 3.—The ground-work of the cupid may be white, black, and yellow. A very good imitation of flesh color for the body may be made of lake-white and yellow ochre; or, of vermilion white and burnt sienna, shaded with raw sienna; the dotted drapery, Naples yellow; quiver, a bronze color—a mixture of white, burnt umber, and chrome yellow—shaded with vandyke-brown, lightened with white; net striped with Naples yellow. We leave the remaining details for the taxation of the painter's ingenuity.

No. 4.—The top portion of the shield may be blue blended with white, the lowest portion white shaded with asphaltum; the stars gilt; the bars vermilion shaded with lake; the tassels like the cord in No. 1; the scroll-work burnt umber, blended with lemon yellow, tinged with burnt sienna, and shaded in the darker portion with asphaltum, and touch up the ends of the leaves with light green. The shield in this is similar to the design on plate xxv., volume three. Nos. 3 and 4 are contributed by Mr. David Aikin. We hope our variety this month will meet the wants of the public.

Trimming Room.

QUARTER SQUAB FOR A CALECHE.

THE engraving represents the hind-quarter squab for

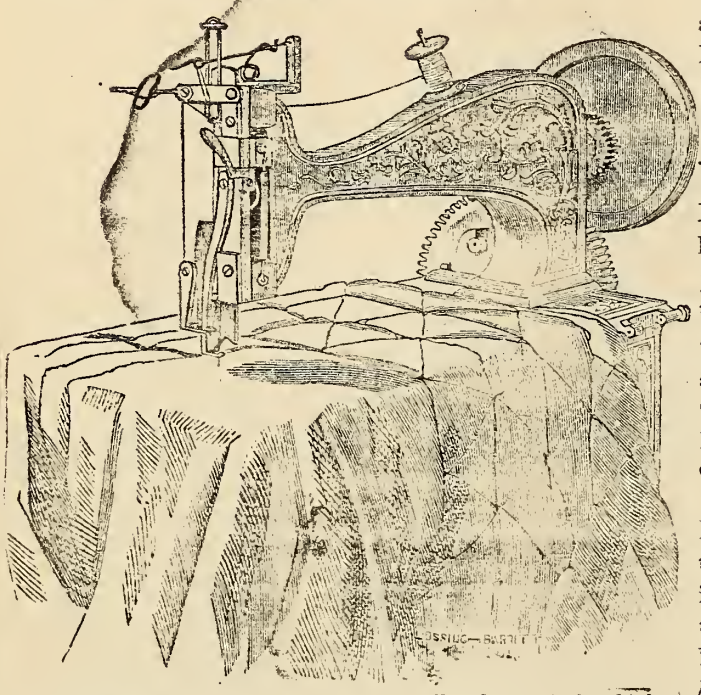


the sides of a full caleche, to rest against the glass, so as to protect it when pressed against by the passenger. This style of trimming is new, and serves to reduce the light from the window, while at the same time it permits of a large glass in the back-quarter. The cut sufficiently explains itself. It will be seen that it is a simple cushion tufted, the central portion being edged with narrow lace.

SINGER'S SEWING MACHINES.

WE have often been asked by correspondents, Whose do you consider the best sewing machines for carriage trimmers? To this question we have no hesitancy in saying that we think that Singer's No. 3 Machine is the only one worth having. These have an arm long enough to take under them and stitch the largest-sized dashes, and are especially adapted to all parts of carriage-trimming. The tables of these machines (24 inches long) are

larger than any others yet manufactured, and the shuttles will hold six times the usual quantity of thread. These machines, which formerly sold for $125, have recently



been reduced in price, and are now offered for $110, which includes the iron stand, thus placing them within the reach of the smaller carriage-makers' means, and rendering them profitable in any shop where new work is made. We do not say this merely because the house advertise with us, but because it is the unvarnished truth, due alike to the enterprise and genius of the inventor and the best interests of our fellow-craftsmen. We may appropriately add that, in our visits to the craft, we have made inquiry and find that Singer's machines are universally approved above all others, and those who have been running older and inferior ones are now getting rid of them as fast as possible for these superior inventions.

The New York Coach-Maker's Magazine.

SEPTEMBER 1, 1862.

E. M. STRATTON, Editor.

AMERICAN CARRIAGES IN THE INTERNATIONAL EXHIBITION.

Under the impression that the British public was hostile to the people and government of the United States, no provision was made for the free transmission of American manufactures to London this year, as was done on a former occasion; consequently we were very poorly represented at the International Exhibition, and what has been done is entirely the result of private enterprise. Indeed, the entire body of American exhibitors numbered less than one hundred, and yet the prizes borne away amounted to eighty—a very good evidence that the jurors themselves were uninfluenced by any national prejudice against us, if, as is supposed, any exists. The jurors selected for the carriage department were Messrs. H. Holmes, Geo. N. Hooper, J. N. Peters, Jos. Holland, Geo. Morin, and Viscount Torrington, with an associate juror, H. Tresca.

One of the jurors, in writing to the editor of this Magazine, says: "The awards of the jury for carriages having just been made, I have now the pleasure to inform you that a prize medal has been awarded to your countrymen, Messrs. Brewster & Co., 'for a phaeton of light construction [the N. Y. papers say *sound* construction], good workmanship (especially as to varnishing and leather-work), and good materials.' Allow me to congratulate your countrymen, through you, on the success of the only carriage contribution from the United States."

We have been shown a letter from Joseph E. Holmes, Esq., the American Commissioner, addressed to the fortunate exhibitors, under date of July 13, 1862, wherein, after stating that the award is the first premium of the Royal Commission, he says: "I think you should be especially pleased with the award, as it is the *highest honor awarded to any carriage in this exhibition.* I am proud of the results throughout our department; we have more than two to one of the average of the prizes awarded, as compared with the whole, and in the claims we most care for we have three to one."

The Messrs. B. & Co. have since received an order to duplicate the phaeton, from Sir George Brooke Middleton, Baronet, of Needham, Surrey; and, could they have supplied them, they might have had several other orders.

We learn that, in addition to this phaeton, Messrs. B. & Co. exhibited a buggy weighing about 260 pounds, which the English visitors pronounced too light for safety. Such being the fact, the sensation which would be produced in the minds of the Londoners by the advent of a live Yankee in Hyde Park, behind a nag at a "2.40" gait, in a trotter weighing only 135 pounds, may be more readily imagined than easily described. Messrs. Blanchard & Brown, of Dayton, O., also carried off a medal "for wooden wheel-spokes, machine made;" and A. G. Gibson received another for his "improved carriage-coupling, [because of] its originality of design, and probable utility." The entire body of American exhibitors were less than one hundred, and yet they were awarded eighty medals—a sufficient number to satisfy our national pride to the fullest extent.

CARRIAGES AND THE TAX BILL.

Once upon a time our forefathers rebelled against a monarchical government, chiefly because said government had imposed a stamp duty on "vellum, parchment, or pa-

per," used for legal instruments, etc. The very thing then complained of we are now, for our indiscretions, obliged to suffer, with this difference in the case—*that* was the cause of that rebellion; *this* the effect of another, among ourselves. What effect this duty will have on carriage-making may be inferred from what follows.

The act just passed by Congress says: "That from and after the first day of August there shall be levied, collected, and paid by any persons owning, possessing, or keeping any carriage, ... the several duties or sums of money set down in figures against the same respectively, or otherwise specified and set forth, in schedule marked A."

Carriage, gig, chaise, phaeton, wagon, buggy-wagon, carryall, rockaway, or other like carriage, the body of which rests upon springs of any description, kept for use, and which shall not be exclusively employed in husbandry or for the transportation of merchandise, and valued at $75 or over, including the harness used therewith, when drawn by one horse $1 00

Carriages of like description drawn by two horses, and any coach, hackney-coach, omnibus, or four-wheel carriage, the body of which rests upon springs of any description, which may be kept for use, for hire, or for passengers, and which shall not be exclusively employed in husbandry or for the transportation of merchandise, valued at $75, and not exceeding $200, including the harness used therewith, drawn by two horses or more 2 00

Carriages of like description, when valued above $200 and not exceeding $600 ..... 5 00

Carriages of like description valued above $600 ... 10 00

The taxes on some of the articles used in the manufacture of carriages will be: On patent and enameled leathers, 5 mills per square foot; on harness-leather, 7 mills per pound, except when damaged, or made from hides imported east of the Cape of Good Hope, when the duty will be 5 mills; on glue, 5 cents; on linseed-oil, 2 cents per gallon; on white lead, 25 cents per 100 pounds, and other paints, dry or ground in oil, and varnish made wholly or in part of gum copal or other substances, 5 per centum *ad valorem* [according to the value]; on wood screws, 1½ cent per lb.; on iron over one-eighth of an inch in thickness, $1 50 cents per ton; on cloths, 3 per centum ad valorem. Luckily for the trade, we now use but little leather compared with former practices in trimming carriages. On this and other materials, if charged to us by the dealer, the increase of costs will amount to about 80 or 90 cents on a buggy.

Every manufacturer or dealer in carriages will have to pay an "income duty" in the form of a license fee, of $10 annually, and should his "gain, income, or profit" exceed $600, and not amount to $10,000, on the excess there will be a duty of 3 per cent. Should his gains reach annually $10,600, on the $9,400 he must "shell out" 5 per cent. This last item, however, *will alarm* but few carriage-makers, we think, as such lucky fellows are scarce among us. This act will remain in force for three years, at the close of which, should our war continue, another will probable be passed to meet emergencies.

TRACK OF CARRIAGES IN DIFFERENT LOCALITIES.

DIFFERENCE of track in different localities has caused much trouble and vexation to carriage-manufacturers and dealers, both in this country and Europe. How the matter may be remedied is a question yet undecided. Some have suggested that Congress should pass a law, fixing a standard for the entire Union. This would be advantageous, no doubt, could there be found unanimity sufficient to determine a width satisfactory to all. We think, however, no change may be expected from that quarter, as Uncle Sam's track would stand in the way of all others. We suppose, then, we must suffer on still, with the privilege of using all the patience we can summon to our relief.

On page 157, volume Two, we asked our correspondents to, when writing on business, give us the track of the carriages in their several localities, to which there were many responses. We give a table below, as the result of our effort, not, however, without serious apprehensions that it is imperfect. We publish it in the hope that any deficiency which may be detected will be supplied by those individuals under whose notice it may come, so that we may be able hereafter to present our friends with a more full and correct one. A complete table would prove valuable to all coach-makers.

	FT.	IN.
The carriage-track in Massachusetts is (from out to out side)	5	4
In Rhode Island	5	4
In Connecticut	4	4
" *Exception*—in some counties	5	4
In New York	4	8
" *Exceptions* to the above: In Kingston, Ulster Co., and some parts of Delaware, Greene, and Sullivan counties,	4	6
In western portions of N. Y. State	4	7
In Shawangunk, N. Y.	4	10
In Bridgehampton, L. I.	5	9
In east end of Long Island, and some other parts	7	4
In New Jersey and States south	5	0
Except in Cleveland, Tenn., where it is	5	2
In Washington Territory and Oregon (centers)	4	6
In Buenos Ayres, S. A.	5	9

As all our readers are interested, we repeat: We hope any omission detected in this table will be supplied by our friends at once, by letter, that we may perfect it soon.

WHOLESALE PLAGIARISM IN AN ENGLISH JOURNAL.

Forbearance has been pronounced a virtue; but a point may be reached in its exercise where it loses that quality. We present the reader with an example. Our cotemporary in England, *The Carriage-Builders' Art Journal*, of which we complained under its previous directorship, continues still its disreputable course under the publication of Mr. Dormer. We have taken the trouble to examine the last fourteen parts of the Journal, ending with May, and find therein forty-nine different articles reproduced from our pages. These were all written expressly for our Magazine, and yet twenty-five of them have been palmed off on the public as original, or at least without giving us credit therefor. A private remonstrance against this wholesale robbery having failed in correcting the evil complained of, we have only a single remedy left (and this the poverty of mechanical matter in England may cause to be disregarded), that is, to copyright every number of our Magazine, and hereafter visit all piracies upon our pages "with the terrors of the law," against those who circulate the Journal in the United States. We think an article worth republishing is worth at least a "thank ye." Under these impressions we have decided no longer to permit our brain-labors to *season* another publication without the amende honorable. The *Mercure Universel*, whose disregard of the laws of *meum et tuum* is fast becoming habitual, will avoid trouble by reforming also.

TRIANGULAR DOUBLE-ACTION FIFTH-WHEEL.

Our readers will doubtless rejoice to learn that the question of patent fifth-wheels is now definitely settled. We have been shown one, recently patented, that will "knock the spots out" of all others, and cannot possibly be claimed as an infringement on previous inventions. Another thing—the patentee is a gentleman who is willing to sell rights at a reasonable price, and his invention is far superior to any ever used. We expect to be able to illustrate and describe it in our next number, until which time our readers who are thinking of buying the right to use couplings had better wait.

EDITORIAL CHIPS AND SHAVINGS.

Hansom (not Handsome) Cab in the Central Park.—Several attempts have from time to time been made by private parties to introduce this London "institution" to the American public, but always without success. The Commissioners of the Central Park have now taken the business in hand, and imported and placed a Hansom in that favorite place of resort. Any person desirous of *prospecting* in that direction may now have an opportunity of trying it for a small sum, while a burly Jehu *sits guard over him*. Should this vehicle "take," we understand that the number will be multiplied.

A Coach Proprietor's Epitaph.—In the churchyard of Bolton-le-Moors, England, may be seen the following epitaph: "Sacred to the memory of Frederick Webb, coach-proprietor, of the firm Webb, Houlden & Co., of Bolton, who departed this mortal life the 9th December, 1825, aged twenty-three years. Not being able to combat the malevolence of his *enemies*, who sought his destruction, was taken prematurely from an affectionate, loving wife and infant child, *to deplore the loss of a good husband, whose worth was unknown*, and who died 'an honest man.'"

Steam-Wagon for the Western Prairies.—Mr. John A. Reed of 63 Liberty street, New York, has just finished a steam wagon intended for the transportation of freight from Omaha, in Minnesota, to Denver City, in Kansas. It is to be propelled by four engines of ten horse power, the driving wheels being ten feet in diameter, with tires eighteen inches wide. The steering wheels are six feet in diameter. It is calculated to haul eight tons at a speed of four miles per hour, or half the weight at six miles the hour. An engineer, fireman, and a steersman are required in operating the machine, and one cord of wood will be consumed in eight hours' traveling. If this succeeds, a revolution will be effected in the transportation of freight in our Western country.

LITERARY NOTICE.

Our favorite visitor, *The Atlantic Monthly* for July and August, is before us. Crowded as we are with other matter, still the intrinsic merits of this work demand a notice at our hands. To say that we are delighted with it may be thought only slight praise; but when we say that many among our friends who take the work pronounce it the *ne plus ultra* of periodicals, we only wonder why every body does not take it. We are gratified to find its circulation extending, notwithstanding the unsettled state of national affairs; a sure indication that it has a firm hold upon the minds of the reading public.

The Coach-Maker's Letter-Box.

LETTER FROM WISCONSIN.

Berlin, Wis., August 1, 1862.

Mr. E. M. Stratton:—*Dear Sir*, If you have space, please publish the following, it may be of use to some carriage-maker, in these pinching times, who thinks he cannot afford to pay three dollars for The New York Coach-maker's Magazine. You will remember that I sent you the names of four subscribers, who wanted to take the Magazine the last half of the present volume, and which you would not accept unless they would take the whole volume. I called upon them and requested them to do so, and told them at the same time that I thought it would be money in their pockets to take the entire volume; but they all thought that three dol-

lars was more than they could spare for the Magazine until after they had paid their taxes, at any rate. I wrote you afterwards, giving you the result, remarking at the same time that I thought them "penny wise and pound foolish." I have watched the progress of their business since, to see if I could verify the truth of the remark. I give you the result in one case, with all the names and particulars, so that it may be contradicted if I mistake anything. [We have suppressed a part of them.]

A few days since Mr. Lowe, a hotel-keeper of this place, called on me with one of his guests, who lived some distance in the country, and wanted to buy a wagon. He wanted to know from me where he could best buy a wagon. After thinking the matter over, I told him that I knew of a wagon belonging to a Mr. Hall, which, if he had not sold, I could recommend as being a good one. If sold, I told him he would get the best wagon at the shop of Messrs. A. J. Work & Co. Now this firm and myself do not pretend to exchange any kind offices; but they take the Magazine, and in addition to being good workmen themselves, they adopt the many improvements presented therein. I felt that I could not act otherwise, and be honest with the man who had sought my advice. Mr. L. said some one had advised him to go to Mr. ——'s shop and purchase. Now Mr. —— is one of the half-year's rejected subscribers, and a personal friend of mine; a very good workman generally, but his wood-workman had adopted the bad fashion, which prevails in this section, of making his wheels without sufficient dish. I had seen a new wagon, belonging to Mr. H—— R——, made at his shop, one of the wheels of which had nearly all the spokes broken off in the middle, from adopting a bad principle. In the first number of the present volume an article was given, with engravings, showing the necessity for giving to a wheel the proper dish. That information Mr. —— had lost because he could not afford to give three dollars for what was necessary to him. I had no right to make my friendship for another the loss to one seeking my advice, and therefore acted accordingly. The result was, another firm found the sale of a wagon, getting their pay in gold, the premium on which would pay for the Magazine more than three years. I could name other cases which go to prove as conclusively this "penny wise and pound foolish" way of doing business, but this example is as much as I care to mention, in a case where I have had to sacrifice the interests of my friends to honesty.

HENRY HARPER.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

June 10. IMPROVEMENT IN HUBS AND JOURNALS FOR CARRIAGE-WHEELS.—R. W. McClelland, of Springfield, Ill.: I claim, *first*, in connection with a cast-iron hub made in two sections, the driving in of the spokes radially into one of the sections, in combination with the shoulder, recess, flanges, and screw-threads, to brace and bind the two sections to each other and to the arched part of the spokes, substantially as described. I also claim, in combination with a cast-iron hub, sectional, adjustable, and removable metal boxes to take the bearings of the journal, substantially as and for the purpose set forth. I also claim, in combination with sectional adjustable boxes in the hub, the removable bearings on the journal of the axle, substantially and for the purpose set forth.

17. IMPROVEMENT IN MACHINES FOR UPSETTING TIRES.—G. McKown, of Altona, Ill.: I claim, *first*, the taper keys, J M, when fitted in taper oblique slots, I L, for the purpose of enabling them to sink into the tire under the action of the slide, G, as described. *Second*, The loop, O, and bar, P, constructed and arranged as shown, for the purpose of forming a bearing or support for the heated portion of the tire, as specified. *Third*, The combination of the toggle, D, with slide, G, attached, the stationary bar, K, jaws, H N, the oblique slots, I L, keys, J M, and the bearing or support formed of the loop, O, and bar, P, all arranged for joint operation as and for the purposes set forth.

IMPROVEMENT IN SECURING BITS IN BRACES.—John Mix, of West Cheshire, Conn.: I claim the cylindrical shank, D, provided with plane surfaces, *a c*, as shown in connection with the stop or bearing, E, and the set screw, F, all arranged substantially as and for the purpose set forth.

24. IMPROVEMENT IN COMBINED HOUNDS AND FIFTH-WHEEL.—George Archer, of Massillon, Ohio: I claim the described special construction and arrangement of the hounds and fifth-wheel, when combined and operating conjointly, as specified.

IMPROVEMENT IN MACHINES FOR UPSETTING TIRES.—I claim the combination and arrangement of the sliding bed and stationary bed, stationary jaws and sliding jaws, wedge-shape keys, cam and lever, substantially as set forth and described, and for the purpose specified.

IMPROVEMENT IN WRENCHES.—G. B. Phillips (assignor to J. R. Crockett), of Newark, N. Y.: I claim the jam or holding nut, arranged substantially as described, for the purpose set forth. I also claim the socket, L, in the head, A, in combination with the removable sockets of various sizes for screw-driver or other tools used in it.

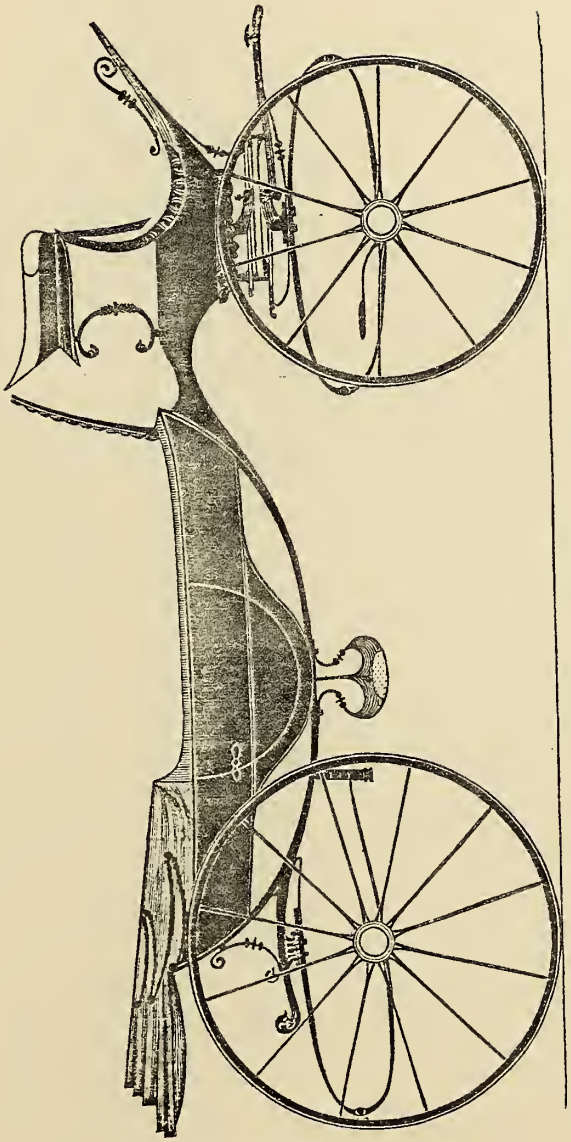
IMPROVEMENT IN PLANES.—Joseph Vendrand, of Paris, France (patented in England March 4, 1861): I claim, *first*, the combination with the plane iron, A, provided with mortises, B, as described, of the adjusting screw, V, sliding block, B, and tenon, *a*, the said tenon and mortise being relatively so constructed as to allow the iron sufficient play to permit the perfect adjustment of the edge parallel to the face of the plane, as set forth. *Second*, the combination of the nut, *a'*, which secures the cap to the cutting iron, with the lever, E, and ears, E' E', as and for the purpose set forth. *Third*, the arrangement of the lever, E, and screw, *c*, as described—that is to say, in such a manner that the screw shall take its point of support upon the top of the plane, and, extending up through the nut, E2, terminate in a head for operating above the leather, E, as set forth, instead of behind it, where it would be in the way of the operator.

July 1. IMPROVEMENT IN STANDARDS TO LUMBER WAGONS.—B. F. Bean, of Schuylkill, Ill.: I claim the combination of the socket, A, slide, B, spring, D, and pin, E, constructed and adapted to operate together in the manner substantially as and for the purpose specified.

IMPROVEMENT IN RUNNING GEAR OF VEHICLES.—D. C. Brown, of New York city: I claim, *first*, the flexible joint between the sectional reaches, A and B, in combination with the sliding box, C, substantially as and for the purpose described. *Second*, the finger, D, on the sliding box, C, in combination with grooves or channels, *f* and *g*, substantially as and for the purpose set forth.

IMPROVEMENT IN ATTACHING SHAFTS TO AXLES.—A. E. Smith, of Bronxville, N. Y.: *First*, I claim the method of constructing iron or steel axle-trees, of wagons and other vehicles with a drawn-out or solidly-welded jack or eye on the front edge thereof, for attaching the thills thereto, substantially as set forth. *Second*, I also claim the use of a square bolt and openings in the ear-pieces of the thill-irons, to hold the bolt from turning on its own axis, in combination with the packing and jack, for the purposes described, and made and operating substantially as set forth.

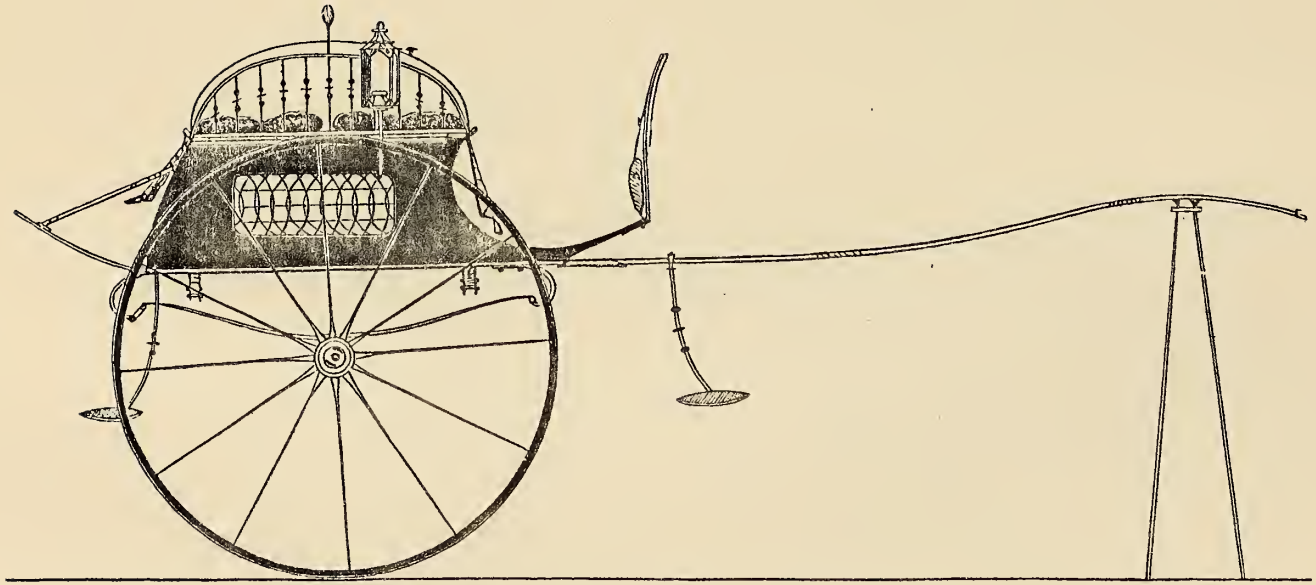
15. IMPROVEMENT IN AXLES FOR VEHICLES.—John W. Crannell, of Springport Township, Mich.: I claim connecting an iron axle with a wooden axle-tree, by the use of the shank, J, and collar, I, in combination with the shoe, B, lock-nut, *m*, and washer O, substantially as and for the purposes described.



SKELETON BRETT.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

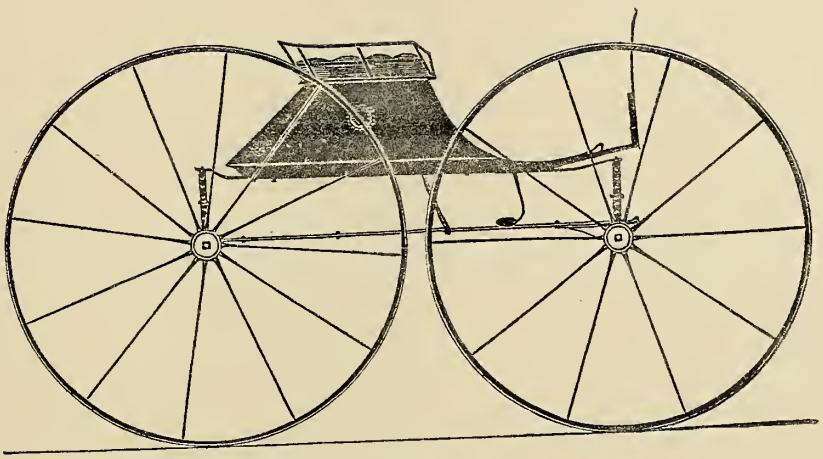
Explained on page 191.



ENGLISH DOG-CART.—½ IN SCALE.

Engraved expressly for the New York Coach-maker's Magazine, from a Design furnished by Messrs. ATKINSON & PHILIPSON, *Newcastle-on-Tyne, England.*

Explained on page 191.



BRACKET-FRONT BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 191.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IV. NEW YORK, NOVEMBER, 1862. No. 12.

Miscellaneous Literature.

For the New York Coach-maker's Magazine.

HALFORD CRUFF;

OR, WHAT A TRAVELING JOUR. SAW "OUT WEST."

BY J. WALTER SHIRLEY.

(*Concluded from page* 171.)

HARRY CLIFTON and I thus found ourselves transferred from Cairo to the great Western metropolis, St. Louis, a place of considerable attraction, especially to persons of Eastern nativity. The transient population was not all from the East; for here were men collected from every point of the compass, and composed of every imaginable class, speaking different languages, and dressed in as many different costumes, plying their respective occupations.

St. Louis may at one time, for aught I know, have been a real paradise for journeymen carriage-makers; but my testimony would tend to refute all such delusive ideas at the present day; for the greatness of St. Louis (if such an exalted qualification ever existed), as the refuge and delight of those of the craft who turn their steps westward, has long since disappeared. The continual flow of tramping jours, with empty pockets, fleeing from depressions, imaginary or real, in the wages of the Eastern States, have so filled the city, that those of the craft, knowing this, give it a wide berth, and pass on in quest of a more desirable locality.

Harry Clifton had sought diligently for a situation at book-keeping, school-teaching, or anything in the order of business; but his efforts proved as fruitless as mine had in search of a job at carriage-building. After spending several days in the city and finding no employment, and exercising much thought on the subject, Harry and I concluded to seek a better location. The only difficulty was to ascertain where such a locality could be found, and we were ready to proceed in search of it at once. Procuring one of the city newspapers, and scanning the "Wants" columns, we were partially rewarded by finding the following: "To Book-keepers.—A first-class book-keeper can find constant employment by applying to the undersigned, John Sale, Edinburgh, Mo."

We determined to proceed immediately to Edinburgh; and, confident that hoping had not ceased to be a virtue, I condoled myself with the hope of obtaining a job also. So taking passage on an up-river steamer, we were early the next morning gliding steadily over the rough and misty surface of the Missouri.

After traveling fifty miles by the river, we shifted our baggage on to the mail stage, and procuring seats thereon, proceeded in the direction of our place of destination. We traveled for the space of three hours, when suddenly turning a skirt of timber, the village of Edinburgh lay before us in all its prairie grandeur. Here the vision was enraptured by the sublimity of the view opened up before us. On the left lay an extended forest of tall trees, clothed in the heaviest and richest foliage the mind of man could imagine, or painter or poet describe. A prairie niche had been formed by the tasteful hand of nature, in the body of this gigantic forest, deseribing a right-angle, in which lay one of those sunny nooks, surrounded by cooling shades, which has revived the spirits of many a weary traveler. In this beautiful spot lay the village of Edinburgh, nestled cosily down, as if to enjoy to the fullest extent the natural grandeur with which it was surrounded. To the right, the view seemed unlimited. A vast prairie extended as far as the vision was capable of reaching, without an obstruction to intervene, save now and then a solitary tree—one of those "Good Samaritans" that stretch forth their shadowy arms to refresh and revive the fainting traveler. The coach drew up in front of the village hotel, and we dismounted, already so well pleased with the appearance of the place that we had very nearly concluded to make it our permanent home.

We employed the following afternoon in looking about the village, during which time we visited the shop of Mr. Bennett, a very well-regulated carriage and wagon factory, where I succeeded in procuring a job, at good wages, with clean lumber and plenty of it. Harry Clifton having already secured the expected situation in the counting-room of Mr. Sale, we were ready to begin on the following morning. Our employers, Messrs. Sale and Bennett, proved very sociable men, with a fund of humor, to make their respective establishments agreeable. With such inducements before us, and the good society, of which Edinburgh was made up, to associate with, we were confident that the time we should remain would be spent profitably and pleasantly.

Harry and myself becoming tired of the hotel, which

proved incommodious, not having any private apartments to let, we persuaded a gentleman to board us, who lived in the suburbs of the village, where we found the table spread with everything that could be wished for, an apartment fixed up for our accommodation, with tables, rocking-chairs, and books; everything in fact that would promote our mental and physical enjoyment. The gentleman with whom we boarded was of a very communicative disposition, and with his wife and two grown-up daughters, we spent the time very pleasantly.

More than a year had passed away since we stopped in Edinburgh. October, brilliant in its magnificent drapery of softened rose-tinted coloring, had dawned upon us, enchanting us with the whisperings of one of nature's balmiest reveries. Harry and I had plied ourselves steadily to business, gradually replenishing our purses, until finally, when we settled with our employers, we found ourselves in possession of several hundred dollars each.

Mr. Sale, agreeable to his annual custom, was making arrangements to purchase cattle for the St. Louis market, and having found confidence in Harry and myself, proposed that we should invest our funds also and accompany him to the city, to which we readily assented; and, as the saying goes, "striking the iron when it was hot," John Sale made a nice thing of it, realizing a large per cent. on our investment.

As we were seated in our room one pleasant evening, shortly after our return from St. Louis, perusing some favorite works, Harry turned to me, saying, "Hal, suppose we invest a small amount in land; I know of some splendid land down on the river that will sell low; it is beautifully situated, and in a fine healthy locality. It was formerly purchased by a company of speculators, with the intention of founding a town, but a change in financial affairs broke the company, and now the lands may be bought at a small advance on Government prices. Now the boss (meaning John Sale) has everything arranged to start for St. Louis to-morrow morning, with the purpose of buying a large tract of this land, and is going to carry out the original plan of laying out a town; and he proposes that you and I take stock in the enterprise. What do you say?"

"Nothing could give me more pleasure," replied I; and taking our hats we walked down to the office of Mr. Sale. An agreement was soon made, and the next morning we were on our way to the city. The land was purchased, and the money paid for the same, and I then realized the first gratifying sensation of being the actual possessor of real estate. During the winter a number of the lots which had been surveyed were disposed of, and preparation made to improve them. With the opening spring a considerable village sprang up, with shops, stores, hotels, and other public establishments.

The first of May—two years precisely since Harry Clifton and I had left Perchville—had dawned brilliantly, clothing the surrounding view in refulgent beams and floral robes, inspiring all animate objects with vigor and gladness, when I seated myself to answer the last letter from the hand of Annie Clifton. It had come sweetly perfumed, neatly penciled, and delicately folded, bearing words of assurance and love to my impulsive heart.

Impelled by feelings of profound gratitude, I wrote an answer, and among other things informed Annie of the success which had crowned my efforts, in a financial point of view, since I left her; closing with the assurance that I should visit her at an early period, hoping, however, to hear from her again before I started. Finally, the long-looked-for answer came to hand, and seeking a solitary place I broke the seal and read with admiration the contents. "The time of our separation," said Annie, in one part of her letter, "has seemed very long indeed; but I hope you and Harry will hold us no longer in suspense, but will come immediately."

Everything being in readiness for our departure, in a week from the reception of the letter, Harry and I landed in Perchville, where we were warmly received by our friends and associates. Shortly after our arrival certain newspapers announced the marriage of Mr. Halford Cruff, of the State of Missouri, to Miss Annie Clifton, of Perchville, Indiana; but with what degree of correctness, I shall leave the reader to investigate.

As you pass up the Missouri on board a steamer, some pleasant afternoon, when the long shadows from the western forest spread their dreamy forms over the smooth bosom of the water, and the flowers of May have clothed the green hills in the richest garments of spring, and the waves seem hushed in sweet repose, you will not fail to observe in the suburb of, and at a convenient distance from one of those pleasant up-river towns, a neatly constructed modern cottage, with all the improvements in style and finish of the present day. It is situated back from the river, perhaps, three hundred paces, on a beautiful sloping elevation, and half concealed from view by forest and fruit trees, with here and there an ancient elm or poplar towering above all, and looking down, guardian-like, upon their neighbors of more gaudy appearance but of less elevated stature, whose branches clustering together form pleasant arbors and inviting frescades.

Through the opening vista lie broad graveled walks, leading in various directions, edged with grape vines, evergreens, and flower-beds, contributing greatly to beautify the sylvan scene. The dwelling, adorned with heavy cornice and a broad elaborate portico in front, and the whole painted in snowy white, gives it a very handsome appearance.

Notwithstanding I am the owner of a happy home, and everything that tends to make it pleasant and comfortable, I have not ceased to exercise my hand in the practice of my trade. As you pass through the wide, clean, shady streets of the village, you will see a neat two-story shop, situated on a public corner, the sign of which would indicate that I am the proprietor. Call you in there; rest yourself under the cooling shade of its great spreading locusts, and appease your thirst from the pump in front, where flows the crystal fountain, cooling and refreshing the lips of many a weary tramper.

When you have become refreshed, then step into the shop, on the right of which you will see a neat bench, with iron vise, and decorated with a fine kit of tools. This place is reserved for my own use; here I employ from four to six hours per day, plying a chisel, plane, and saw on some fine and ornamental work. Three other benches are occupied by as many good honest jours, who, as I have done heretofore, are striving to make their mark in the world. Yes, I like to handle those tools that have been my companions so long; they seem like so many dear old friends. They bring to my memory friends of other days, some of whom have wandered to the four winds of the earth, others sleep calmly beneath the green sward of

the cemetery, and some are with me now. The sign of that beautiful brick dry-goods store yonder is embellished with the names of Sterling & Clifton—the same Lewis and Harry of former years. May they ever prosper!

My Irish friend, whose acquaintance I formed at Gallipolis, occupies one of the benches in the neat two-story shop in the village; he is ever faithful and good, and as comical and mirth-provoking as ever. Maria Wilford and Lizzie Sterling, who, from some unknown motive, have since assumed the names respectively of Mrs. Lewis Sterling and Mrs. Harry Clifton, are our neighbors, and excellent neighbors are they; Maria as intellectual and commanding, and Lizzie as humorous and witty, as in years of yore.

As I sit in my cool library penning these thoughts as they pass hurriedly through my mind, I hear from the parlor the soft tones of the piano, intermingling with female voices, discoursing sweet music; Maria and Lizzie are paying their evening visit. Hark!—fairy footsteps are heard approaching; a fair dimpled arm encircles my neck, and warm lips impress my forehead. It is no dream—it is a happy reality. Annie is standing by my side, smiling in bewildering loveliness on me, while the pure rays of devotion are reflected through her liquid eyes, in the light of which I live unmolested in the green fields of contentment. Adieu.

For the New York Coach-maker's Magazine.

THE MOTIVE POWER OF WHEEL-CARRIAGES.

BY H. H.

(*Continued from page* 174.)

EQUAL bearing on the shoulder and point of the axle being necessary, no wagon-maker will have the hardihood to dispute it; because it is a point so generally admitted by the craft that, whether we understand it or not in the true light of philosophy, we are unwilling to expose our ignorance of the subject by dissenting from a proposition so universally admitted. This assent so easily obtained, without knowing why or wherefore, is the cause of spoiling a very large proportion of all the wagons that are built. It must be remembered that we call a wagon entirely spoiled that requires one pound of *unnecessary* draught to draw it, without a load. That ninety-nine wagons of every hundred fall short of being perfect in draught as much as one pound, few will deny; and my own opinion is, that by an actual measurement of the motive-power that wagons require, it will show that not one in a thousand is perfect.

The unequal bearing of the box on the shoulder and point of the axle-arm is one very fruitful source of this inequality of motive-power referred to; and judging by the various courses that mechanics pursue to make the bearing equal, it would seem that there is no settled rule by which they are governed; and it is a very difficult point to discover what is generally understood. We hope to have a candid and undivided attention to the subject under consideration, and we will not only endeavor to clear the subject of some of its misconceptions, but to establish our theory on a mathematical basis, not liable to error.

In the commencement, we will say that a few pounds more or less of bearing on the shoulder or point of the axle-arm makes so little difference that it is scarcely perceptible in the motive-power, when the wagon is new; and if the axles and boxes are polished smooth, and everything else right about it, we can but just barely perceive, by applying the most accurate tests, that there is any difference. Yet we will show that this very minute defect increases every time the wagon is used, until long before the wagon is worn out the defect is so great that the motive-power wasted would more than pay for the use of a good wagon, if it was saved.

We present, in Fig. 9, a section of the bearings of a wheel as compared with the angles on which the spokes stand from the perpendicular line. *a* is supposed to be the under side of an eight-inch box on which the axle rests. The perpendicular line, *a b*, is the spoke on which the load rests. As it now stands, resting perpendicularly on the spoke, *a b*, the arms (if we may so call them) of the box extend on each side of the center of the spoke, four inches. If there is 500 pounds weight resting on the spoke as it stands perpendicularly, then there is 250 pounds bearing on each end of the box. This being the case, no matter how much the wagon is used, and the axle-arm and box are worn, there being an equal pressure sustained on each end of the box, the wear will be equal; and if the wagon is used until the axle is worn half off, still the wheel will maintain the same perpendicular position of the spoke on the under side of the wheel, and consequently the same equality of bearing and wear. Now let us change the bottom of this spoke to figure 1, on the left hand side of the spoke, which is an inch out of a perpendicular position, and then calculate what the bearings on each end of the axle-arm and box are. The arms of the box—as we have called them—are four inches long, and are actually so many braces, extending on each side of the spoke, to hold the wheel from falling over on either side. When the spoke sustained the load on a perpendicular, there was no inclination for the wheel to fall over either way. The only use of the braces is to support it in an upright position when it is thrown off from that perpendicular. Now this changing the foot of the spoke has changed the center of gravity towards the left end of the box one inch, which shortens the brace one-fourth, and increases the pressure on the foot of the brace, or axle-box, one-fourth of the 250 pounds, which is 62½ pounds heft added to this part of the arm; and the same amount taken from the weight on the other end of the arm leaves the relative pressure on the two ends of the arms 312½ pounds on one end, and 187½ pounds on the other.

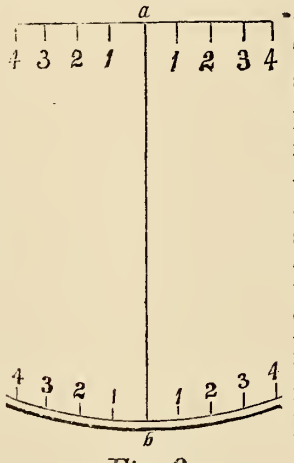


Fig. 9.

If we change again the foot of the spoke, so that it stands at 2, we have 375 pounds bearing on one end of the axle, and 125 on the other. Again, if we move on still further the foot of the spoke to 4, all the 500 pounds will bear on that end of the axle, and not one pound on the other. Up to this point (4) there is no additional weight above the 500 pounds added to the axle; but, if

it is carried beyond the last-mentioned point, the pressure on the axle increases two-fold to what it did before reaching the four inches, or one-half the length of the box. The first inch that it reached beyond would give the wheel a tendency to fall over on the side of 62½ pounds. This tendency to fall over is resisted by the opposite end of the axle (on the upper side at 4) by a pressure of 62½ pounds on the box, which creates a counter-pressure on the under side of the opposite end of the axle of 62½ pounds. To sum up the amount of pressure on the axle at this last stage, shows that with only 500 pounds resting on it, we get a pressure that creates a friction equal to a 625 pounds load.

At this point, let us stop and ask a question: What would be the heft produced by friction, under the same circumstances, if the axle-box was 10 instead of 8 inches long? The answer is at once obvious; the two inches added to the length of the hub would make the pressure 500 pounds—just the same as it was when the spoke stood four inches from a perpendicular; and by lengthening the box two inches it relieves the axle of a pressure of 125 pounds, and makes it less than it would have been on the 8-inch axle-box. An objection may be raised to this mode of calculating the bearings on an axle. It may be said that, on account of the unevenness of the road, the wheel will sometimes have a perpendicular bearing; but oftener it will be inclined either one way or the other—no calculations can be made which way. That is true; but another thing is equally true, that there is no design about making it incline either way, therefore the average will be equal to a perpendicular, so far as wear is concerned, if the spoke is set so as to stand perpendicular when it is on level ground. If it does not stand perpendicular, the consequence is that, so far as wear is concerned, it will be just the same as though the roads had a uniform inclination from a horizontal, which the wagon could not get off from, nor in any way relieve itself from wearing the axle on one end of the arm.

It is not uncommon to see the bottom of a wheel stand one inch out of a perpendicular; almost invariably it stands in. Under such circumstances there would be, of the 500 pounds pressure on the box, 312½ pounds on the shoulder and 187½ pounds on the point. Revolve the wheel around until it has worn the axle out, and we shall find the wear on the axle will be in proportion to the pressure on the same, and that will be as 312½ on the shoulder to 187½ on the point of the axle, nearly 2 to 1. Let us now turn to figure 8, and see if we can keep a reckoning of the wear on the axle and the amount of bearing which will be on the shoulder and the point, during the different stages of its wearing-out. As we have said, the wearing will be nearly 2 to 1, mathematically calculated, but experience proves that it is more than 2 to 1; the cause of the difference between figures and our experience we will explain hereafter, but for the sake of having a basis for illustration, we will here call it 2 to 1.

The spoke stands on the underside of the wheel one inch out of perpendicular, which brings it to figure 1 on the bottom and left-hand side of the diagram. If the axle should commence wearing on the point (which we will place at the right-hand side of the diagram) only, it would wear the point of the axle so that the spoke would be brought to a perpendicular bearing, as it now stands, in the line of *a b*; but as it does not wear on the point alone, but wears twice as much on the shoulder as the point. While it is wearing enough on the point to bring the spoke in a perpendicular position, it wears twice as much at the shoulder, which would bring the bottom of the spoke to the 3 inches marked at the left of the diagram. This is the first stage—perhaps the first year of the wagon's wearing—and at this point we will calculate what the bearings on each end of the axle-arm are with the same load of 500 pounds.

The figures will show that, as the wheel now stands, there is the weight of 437½ pounds on the shoulder and 62½ pounds on the point of the axle, which is as 7 to 1. At this age of the wagon—which is not more than one-quarter the wear of a good wagon—the waste of motive-power is so great that, if it was saved, it would pay for the use of a dozen wagons! No man can be so ignorant of the use of a wagon as to value it, in that state, of any account. It will be immediately sent to the shop for reconstruction. If it has an iron axle, the axle will have to be upset, and made large enough to fill the box. If it has a wooden one, a new one must be made so that it will fill the box—which, by-the-by, will be very much enlarged at the large end; and if it is a thimble-skein, the axle, skein, or arm, and the box in which it runs, all must be thrown away, and the wagon supplied with a new one. If it is properly reconstructed, and the right pitch given to the axles, the old wagon will serve out the other three-quarters of its existence usefully; but if it falls into the hands of an unskillful mechanic, it will only be an old curse revamped, and its existence (as it should be) will be very short. In the first place, it will be traded away at the first opportunity that the owner has; next, the extra amount of motive-power which is required to move it has an increased tendency to wear it out; and again, as we have seen, it has other elements within itself that produce its destruction; and, finally, such a wagon never finds a friend—it gets twitched and hauled about hither and thither, with a wish to use it up as soon as it can be done, which is as good a thing as can be, except getting the axles properly set. I use the term "wagon," but every one knows that if the remarks are applicable to the wagon, they are equally so to the coach or pleasure-carriage. Few things are more aggravating to a teamster than to find his horses worried with a hard-running wagon; and, on the contrary, few things will make him more cheerful than to have a spirited team attached to a load and move off with the music that the wheels by their easy play back and forward from the shoulder to the point of the axle-arm will make. This gratification is so great, and at the same time so profitable, that it seems strange that an incompetent wagon-maker should ever be tolerated; but the innumerable hard-running wagons that we see testify most positively that it is so, and that we have no one established rule for the craft to be governed by, and that a great many wagon-makers are entirely incompetent for the trade which they have assumed. There are those who take up the business for the sake of making a kind of business-hash of that and a number of other business ingredients, whose only philosophy about the construction of a wagon is simply this—that a wagon is a wagon any how, providing that it will sell. This class are so utterly despicable that, when I see a patron whose folly is so completely combined with stinginess that he gets into their clutches and gets cheated, as he always does, I cannot very well keep down a hearty laugh when I think how surely he is punished for his

meanness. Yet, after all, wagon-makers are much to blame for allowing such a state of things to exist. If they would take pains to inform themselves of the true law that governs their trade, and on all proper occasions impart to their real fellow-craftsmen such discoveries as they make, they would place an impassable gulf between the craft and quacks.

There are as positive and arbitrary rules (and rules that are as near mathematically alike) to be applied to the construction of wagons, in order to make the motive-power alike, as there are mathematical rules by which clock-makers must be governed in order to produce the same regularity of motion in clocks. Why does not every member of the craft know them? This is the simple and plain answer. We are all too remiss in advancing and supporting the literature that pertains to our occupation. If we feel (as some of us must at times) that our trade is rather on the decline in respectability, let each ask himself, How much have *I* done to keep up its credit in a literary point of view? and let us be governed by the answer that we make to our own conscience.

(*To be continued in the next volume.*)

For the New York Coach-maker's Magazine.

THE RISE AND PROGRESS OF CARRIAGE-MAKING IN ENGLAND.

(*Concluded from page* 176.)

The limit prescribed to this subject prevents our entering into the particulars of every novelty that has been introduced into carriage-making in England; we must, therefore, finish up what we may have further to say in a single chapter. This we may do without damaging our history, since the progress made in carriage-making in England since Felton's time has not been as great as one might naturally suppose. This may arise from the fact that the aristocracy of that country are very much of what a Yankee would style an "old fogy" order, and would not trust themselves in such light carriages as are in demand with us. Fry, in his "Essay on Wheel Carriages," London, 1820, speaks of "light one-horse waggons, constructed to weigh *only* eight hundred pounds!" A one-horse wagon weighing three hundred would be thought quite heavy among us. But we must not be too critical, nor wander from our subject.

According to the *Penny Magazine*, Volume Three, page 46, there were in London, in 1834, two hundred and sixty-four coach-makers, and, in addition, one hundred and eight manufacturers of parts of coaches; and a statement was made that England was then better provided with carriages than any other country—an assertion which must be received *cum grano salis*, if W. B. Adams' "English Pleasure-Carriages" may be trusted as authority. He says of them, "English pleasure-carriages" (this was in 1837), "take them altogether, are the most perfect carriages constructed in any part of the world; and the mistake has been in confounding high superiority in existing art with absolute perfection. To show that English carriages are still far short of perfection will be no very difficult task. 'A large wheel following a smaller one without being able to overtake it,' is the description applied by some quaint author to a carriage. Herein consists the source of the principal part of the defects of carriages." But this writer had an object in view, and that was his introduction of equal-wheeled carriages—thus spoken of in the Fifteenth volume of the London *Saturday Magazine*:

"It is a fact familiar to all our readers that, in almost all our four-wheeled carriages, the front wheels are smaller than the hinder. The object of this discrepancy in size is to enable the carriage to turn round a corner. The front wheels are so arranged as to be capable of turning round a central pivot; and to effect that turning is the first step in turning the carriage itself in a different direction from that which it before occupied. Now, in order that the front wheels should so turn on a central pivot, it is necessary that they be brought altogether in *front* of the carriage, so as turn without in any way interfering with it, or else that they be so small as to turn *beneath* the carriage. In practice the latter plan is observed, and therefore the front wheels are made smaller than the hinder ones.

"Whoever has paid the slightest attention to mechanical subjects knows that friction greatly retards the motion of bodies; and, in wheel-work, the friction of axles is an important item. Now, the smaller the diameter of a wheel rolling along the ground, the greater is the friction of the axle during a journey of a given extent, because the wheel has to revolve on its axle an increased number of times. It is to obviate this increase of friction that Mr. Adams proposes the adoption of equal-sized wheels; and, in order to effect this, he makes certain changes in the form of vehicles, so that the front wheels shall not have to pass *under* the carriage while turning. The principle on which Mr. Adams has proceeded is to make a kind of vertical pivot, or hinge, between the front and hinder wheels, so that, in fact, the whole carriage consists of two parts, connected to each other only by a hinge, round which they could turn, because each part has two wheels affixed to it.

"The first equirotal carriage thus made was a Phaeton (see Fig. 40), which, according to Mr. Adams' account, was drawn with much greater ease to the horse than an ordinary phaeton of similar form and weight, and produced none of the unpleasant rumbling noise common to ordinary carriages.

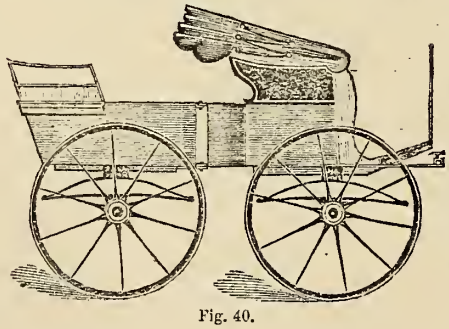


Fig. 40.

"The inventor then proceeded to apply the same mode of construction to cab-phaetons, droitzschkas, chariots, and other forms of private carriages. Lastly, he applied it to the construction of omnibuses, in which, as the whole vehicle is closed in, the separation into two parts, one connected with each pair of wheels, would not be advantageous; he, therefore, proposes that the omnibus should be jointed in the middle, with flexible sides or coverings for the joints made of leather. Mr. Adams thus enumerates the advantages of construction: 'It will turn with facility in the narrowest streets, without impeding the passage-way along the interior, as the flexible sides move in a circle. With this omnibus, two horses would do the work of three; there would be great facility

of access and egress; perfect command over the horses; increased ease to the passengers; greater head-room, and more perfect ventilation; greater general durability, and absence of the usual rattling noise, accompanied by entire safety against overturning. This is calculated for the accommodation of twelve inside passengers, but it might easily be lengthened to hold twenty; and two horses would draw it with the same facility as fourteen are drawn on the present plan, on account of the height of the wheels, which so much aids the draught.'"

Although, at the time, Mr. Adams' novelties attracted much attention, still we are not aware that his dreams have been realized by the general adoption of his inventions in England; and we suspect that it will be a long time before the public will be brought to coincide with his opinions, and favor his schemes. One objection to his novelties is that they make a clumsy-looking carriage; another, a new kind of spring had to be applied in some vehicles, and these, although introduced with all the enthusiasm of a speculator, have not answered their purpose as well as older inventions. On introducing his "regulating bow-spring," Mr. Adams says, "if it be desirable to convert swords and spears into ploughshares and pruning-hooks, it must be equally desirable to convert cross-bows into carriage-springs"—not a very forcible argument, under the circumstances. These springs are shown in Fig. 40.

Our readers have been presented in this volume (Plate VI.) with a modern Mail Phaeton, from our London correspondents, which, compared with Fig. 40, may convey some idea of the improvement made since in English Phaetons. Undoubtedly, one serious defect in English carriages has been that of "making a large hind-wheel push on a small front-wheel," in order to render them short-turning in narrow streets. Our English friends, however, at this time, are improving in this respect, by adopting larger front wheels, *a la* American.

We copy the following picture of metropolitan vehicles in 1840 from Knight's *London*:—"It is very difficult to conceive a London without an omnibus or a cabriolet. Yet who amongst us does not remember the hour when they first appeared? For some two hundred years, those who rode in hired carriages had seen the hackney-coach passing through all phases of dirt and discomfort; the springs growing weaker, and the iron ladder by which we ascended into its rickety capaciousness more steep and more fragile, the straw litter filthier, the cushions more redolent of dismal smells, the glass less air-tight. But it is of little consequence. Nobody rides in them. The gentlemen at the 'office for granting licenses for carriages plying for hire in the metropolis' tell us that licenses are still granted to four hundred hackney-coaches. Alas, how are the horses fed? Are the drivers living men, who eat beef and drink beer? We doubt if those huge capes ever descend to receive a fare. Are they not specter-coaches—coachmen still doomed to sleep upon their boxes, as the wild huntsman was doomed to a demon-chase—for propitiation? The same authority tells us that there are fifteen hundred cabriolets to whom licenses are granted. These we know are things of life. They rush about the streets as rapid as fire-flies. They lame few, they kill fewer. They sometimes overturn us; but their serious damage is not much. We borrowed them from the French on a fine May morning in the year 1820. It is remarkable how slow we are in the adoption of a new thing; and how we hold to it when once it is adopted. In 1813 there were eleven hundred and fifty cabriolets upon the hackney-stands in Paris—'cabriolets de place,'—and we had not one. Now, we have fifteen hundred of them."

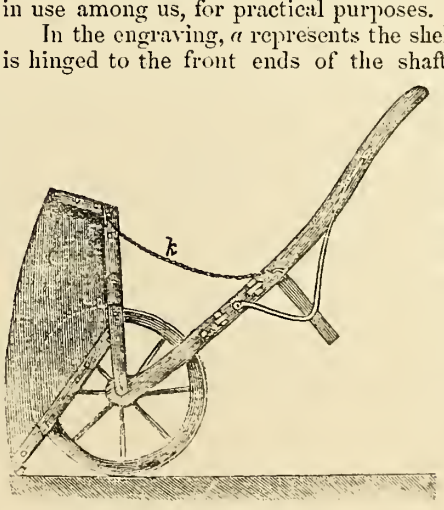
Instead of—as with us—having his "stuff" sawed by machinery into planks, the English coach-maker keeps his in the log, which he has sawed in two pits—one for cutting wood in the "round," and the other for "converting," or sawing to pattern. According to Knight's "Day at a Coach-factory," published in 1841, even the lathe of Messrs. Pearce & Countze, in Long Acre, was still "worked by hand." We need not say to our readers that Americans were ahead of Londoners at that time in the application of machinery to carriage-making. We have reason to think, however, that out of London it was to some extent in use at the time of which we are writing, particularly in the establishments of the Messrs. Holmes, at Derby, and Messrs. Atkinson & Philipson, at Newcastle-upon-Tyne.

Some improvements have been made in English carriages during the last twenty years, which the reader must gather from the drafts, &c., we have from time to time published in the Magazine, from our English friends. Perhaps there is nothing more apparent than the improvement made in the Victoria Phaeton, at the World's Fair, in 1851. This has been imitated and still further beautified by the Parisian coach-makers, as seen in Plate XXI. of this volume. But it is no part of our design to give cotemporary history here. That we have been presenting ever since this enterprise was initiated. To the columns of the four volumes of this Magazine, then, the reader is directed for further information in the recent Progress of English Carriage-making.

DUMPING WHEELBARROW.

We do not think it beneath our dignity to notice improvements, even where limited to so simple an article as a wheelbarrow, and have no doubt our condescension will be appreciated when we present our friends with an engraving and description of one lately invented by Monsieur J. Rey, of Tournon, France. This will be found a decided improvement over those now in use among us, for practical purposes.

In the engraving, *a* represents the shell or body, which is hinged to the front ends of the shafts, the tilting of which is checked by the chain *k*, the ends of which are attached to the body and shafts by staples. This chain also serves by which to draw the body back to its proper place after it is emptied. We notice in the English journals that one E. T. Hughes has obtained a patent for a similar wheelbarrow, which he describes as a dump-



ing one, in which "the shell is made for the frame to swing on a pivot, and when emptied it is upset in the same way as the ordinary street wagon used by excavators." As the French patent precedes the English, we suggest that somebody has pirated in this case on another's rights. We fear that such instances are too common among Her Majesty's lieges to be either accidental or excusable; a thing we would just as readily condemn on this side of the Atlantic, in a patent, as on the other. Neither of these are patented in America.

Pen Illustrations of the Drafts.

SKELETON BRETT.

Illustrated on Plate XLI.

It is with no small degree of satisfaction that we offer this original design to our patrons. We place it among the best we have engraved for this Magazine since its commencement. It makes a light, graceful, and roomy vehicle for the Central, or indeed any other Park, where an open carriage, with an unobstructed view, is desirable. As may be seen, this is a paneled job, and will require the exercise of considerable talent to produce a salable article. To such as understand their business, the draft will sufficiently explain itself without further detail.

ENGLISH DOG-CART.

Illustrated on Plate XLII.

This dog-cart is similar to that given on Plate XVIII., and was sent us by the same respectable firm, Messrs. Atkinson & Philipson, of Newcastle-on-Tyne, England. They call it a Shamrock Dog-cart, and describe it as being quite new in design. The central portion of the body is wire net-work, and is quite a novelty. A perusal of the remarks made in relation to the dog-cart on page 80 of this volume will furnish all else necessary that need be said concerning this draft.

BRACKET-FRONT BUGGY.

Illustrated on Plate XLIII.

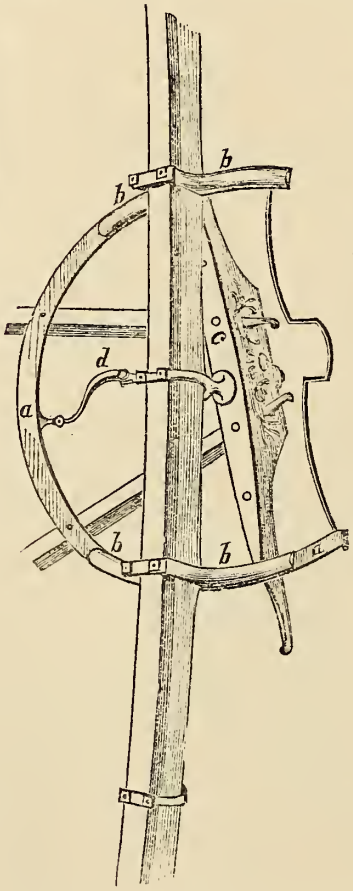
We give this as one of the popular styles of a New York buggy. The boot is paneled, as is the case at present with all first-class bodies. The usual way is to work the bottom-side, or rocker, out of the solid, and insert the panel in a groove formed by the rutter. The seat in this instance is an open one, but the paneled-seat is fast superseding this and all others. The close-panel (or imitation-paneled) seat, with round corners, is certainly the prettiest kind ever applied to a buggy, and when made rolling over at the top edges, as is now being extensively done, it forms the *ne plus ultra* of seats.

Sparks from the Anbil.

AN ANTI-RATTLING FIFTH-WHEEL.

Complaint is frequently made that the fifth-wheels of buggies, and other light vehicles, as usually constructed, are apt to rattle after they have been some time in use. This is due to the fact that two circular and parallel plates coming in contact from some sudden percussion, of course they must produce a rattle as the natural consequence. In the fifth-wheel we are about to introduce, this nuisance is entirely obviated.

Our engraving represents an underside view of the fore-carriage of a buggy, which is supposed to be standing in a horizontal position against a wall, on one end of the axle. At *a a* is shown the flat underside of the top circle-plate of the fifth-wheel. The letters *b b b b* represent the parts of two sections, constituting the under portion of the fifth-wheel, which are held in proper position by the solid clips and yokes, as shown in the figure. This under plate being in two separate pieces, and only extending partially around, the possibility of rattling is removed, and all sound is as completely destroyed as in a bell with a fissure. The transom-plate of the head-block is shown at *c*. Through this, in the center, the clip-kingbolt is made to pass, while the lower end encircles the front bed and axle, and is secured thereto by a yoke and nuts at the underside. At *d* a substitute for a drop-plate is placed, operating by a pivot-bolt in the solid eye formed in the fifth-wheel at one end, while it operates at the other end by a corresponding arrangement, to the yoke of the clip. A different mode of attaching this drop-plate to the yoke of the clip-kingbolt, may be seen in the diagram presented on page 112, volume one. This allusion to the clip-kingbolt, which was given in our first volume, at page 71, allows us the opportunity of remarking, that, other proofs wanting, the fact of our having published to the world this useful improvement (now universally adopted in buggies), is a sufficient testimony to the great usefulness of such a publication as ours. This testimony the most captious disputant will find it difficult to gainsay, though so disposed. In conclusion, we are happy to add that this fifth-wheel is unencumbered by a patent,



and is free for the use of all. Had it been some worthless thing, very probably the case would have been otherwise.

WELDING CAST-STEEL.

WELDING cast-steel is allowed to be a very difficult matter, yet it may be accomplished by the aid of the following recipe: Take ten parts of borax and one of sal-ammoniac, afterwards grind them together, and then fuze them together in a metal pot over a clear fire, taking care to have the heat continued until all spuma disappears from the surface. When the liquid appears clear, the composition should be poured out and allowed to cool, and after being ground to a powder is then fit for use.

MANNER OF USING.—The steel to be welded, having been brought to a bright yellow heat, is then dipped into the powder, and afterwards again returned to the fire until it attains the bright yellow heat as before, and afterwards placed under the hammer and welded in the ordinary way as when welding iron.

IRON-TRADE REFORM IN CREDITS.

THE principal iron dealers have undertaken what they term a reform, and shortened their credit sales from six months to four. This took effect on the 1st of September last. On cash sales they have agreed to allow a discount of five per cent.; but cash sales *now* only allow fifteen days from receipt of invoice to settle in, instead of thirty as formerly.

Paint Room.

For the New York Coach-maker's Magazine.

HOW TO PAINT A CARRIAGE.

(*Concluded from page* 180.)

AFTER a carriage has been striped, it should have time to become sufficiently dry before varnishing, or there will be the same difficulty with its cracking, when put on over the striping, as is found in putting varnish on the body paint before it is sufficiently dry. This difficulty is often erroneously attributed to the inferior quality of the varnish, when in fact it is nothing more than the injudicious application of varnish before the paint has become sufficiently dry. In the application of varnish, a practice has become very common, and is also recommended by varnish dealers, of using different kinds over the same body of paint. For instance, they have what they call rubbing varnish, to be applied for the first coats, which will dry quick and hard, making a coat that can be polished down smooth with rotten stone, after which being done they recommend putting a coat of wearing varnish that dries slow and flows over smooth, giving a beautiful appearance to the job. Painters have worse practices among them occasionally than this; but, I must say, this is bad enough, as may be plainly seen by investigating the subject for a moment. Take two kinds of varnishing, one with the foundation, or first coats, of this quick-drying varnish, the other, the foundation and finishing the same, of the slow-drying wearing varnish, and when they have got thoroughly dry, test them by the force of resistance that they show to accidents to which they are liable, such as scratching or jamming. First, take the point of a pin and scratch it across the surface of the work that is finished with two different kinds of varnish—rubbing and wearing—and it will be seen that the point of the pin will make a ragged kind of a mark, four or five times the width of the pin point; then take a hammer and strike the same varnish, and it will be seen that the place hit will have a yellowish-white appearance, which is occasioned by the under or rubbing part of the varnish crumbling or breaking up.

Again, try the same process on the job that is done wholly with the wearing varnish, and it will be seen that the point of the pin will make a mark only the width of the point of the pin, leaving the edges of the mark straight and regular. The stroke of the hammer will be very much in effect like striking on a metallic surface: it may make a dent, but not crumble or give the varnish another color unless it be a very violent blow. Scratching and bruising are two of the most common accidents varnish is liable to. If we take two carriages done in two different ways, by a skillful workman, we may, on the first appearance, pronounce in favor of the one that is polished smooth with the rubbing varnish; but put them in use together, and it will be observed that the one that at first so readily met with our approbation, will meet with the first accident to its fine finish; and it will continue in the same way, always showing a mark for every bruise or scratch that it receives. On the other hand, the other one will appear as if it had been used in the most careful way, so that it had avoided all accidents, and in fact will preserve its finish much the longest.

There are different opinions about the superiority, in quality, of American and English varnishes. I have expressed mine in favor of American varnish, provided it is manufactured at any of our reputable manufacturing establishments, *and handed over to the workman in the same condition that it comes from the factory.* This is not always the case when we buy of retail dealers, and this fact may have prejudiced my mind against English varnish; but be this as it may, after a constant experience of more than thirty years in the use of varnishes of different kinds, I certainly cannot recommend any that I have used as *equal* to some of our American manufactured varnishes.

Many useful instructions might be given about procuring the best quality of varnish, but our space will allow of only one, and we should not venture on that if we had not a fellow-feeling for Western men, who are imposed upon with bad varnish, recommended in bad English, without any scruples about truthfulness, by one of that race noted for overreaching those with whom they have dealings. Buy your varnish of the original manufacturer, in as large quantities as your business will possibly allow, and of the manufacturer who has a reputation for honesty, and has an interest in keeping that reputation good. If you trust to matching your own judgment and sharpness against that of the roguish peddler, you will surely be beat in the end, or else you will be the exception to all my observation in the matter. I know of no business where so many dishonest practices can be introduced as in the varnish trade: and I know of no trade where dishonest practices are so fatal to a continuous prosperity of the one that practices them. Their harvest must be a short one, and they will never have but one under the same name. For this reason it will be the surest way to

buy varnish direct from the manufacturer who has acquired a reputation for honesty, and has an interest at stake to keep that reputation good, and you will stand a far better chance of getting a good article than you can by getting a foreign-made varnish, the responsibility of which you cannot bring home to the manufacturer.

In order to varnish a carriage well, it is necessary that you be well acquainted with the peculiarities of the varnish, if it has any; and remember that it does not always insure a good job by putting on a great many coats, but that it is more likely the desired end will be attained by carefulness and good judgment. If it is cold weather, see that your varnish is made of about the same temperature as the room that you varnish in, which should be as warm as you can comfortably work in. The same may be observed with regard to the job that you are to apply it to, as near as can be had.

When your varnish is of about the right temperature, see that it is reduced in thickness with turpentine, so that it will brush on easy and even. This is important; for if your varnish is laid on too thick, all the world cannot prevent it from sagging down when it is laid on a flat surface standing perpendicular. What is said about not tempering your varnish with turpentine, comes from men of very little experience in its use, and men that have always been fortunate in finding manufacturers that could temper it for them.

Before you commence to lay varnish on work, see that your person is free from dust, lint, or any substance that will fly from you to the varnish; also, that the room is perfectly free from dust, or any current of air that may bring dust on to your work; also, that your brush—which should be of good, fine, elastic bristles—is carefully freed from all specks that will work out into the varnish when laid on. Sprinkle the floor of the varnish-room with water, which prevents the dust rising from the floor; dust off the work well with the duster, and have all specks removed from the work.

If you have a body to varnish, commence at the highest part first, and work downwards. Use the brush, with a good supply of varnish in it, quick, and draw the finishing stroke as straight as possible, very slightly pressing on to the work. When the work is thoroughly spread over, and evenly laid on, the least brushing that it gets after this the better. But this last direction must not be construed into carelessness about your work. The "sleight" is to lay the varnish evenly over the work in the shortest possible time that it can, and be well done. When varnishing over panels, they should be done first, and the raised parts afterward. Care should be taken about leaving varnish on the corners, or any other place where it will run down.

To varnish the carriage-part, the same rules should be observed; that is, to keep it free from dirt or the minute specks that are more or less constantly flying in the air. Sometimes these minute particles are in the varnish, and cannot be seen until the varnish is laid on to a smooth surface of paint, and then they show themselves plainly. To avoid them, the varnish should be filtered through a cloth. Two coats of the best wearing varnish laid over a polished surface of paint, is enough to make a good job, providing that it has been properly spread and no accident happened to it while drying. Varnish, when laid on with a brush, will show more or less the brush marks, as the bristles leave it in ridges. With only two coats of good flowing varnish, these ridges are scarcely perceptible, but if you add more it will make the ridges more plain, and then follows the necessity of polishing down the surface, and then putting on a single coat of finishing varnish. In the very best finished work this polishing the varnish is pursued, but, as we have said, it does not strike us as being a very good way to finish work. To polish varnish, there is an absolute necessity of its not only being dry, but being so dry and hard that it becomes brittle; but the more brittle it is, the easier it will polish. Now, good wearing varnish flows over the paint better, and is much longer in drying, than the rubbing varnish; in fact it never can be made to rub down as easily as rubbing varnish, and for that reason is very seldom used for that purpose.

In using rubbing varnish for the first coat, it will be necessary to let it dry hard before the next is put on, and in this way get three or four coats on the body, and well dried, before you undertake rubbing it down. Afterwards, take some ground rotten-stone, mixed in water so that it will be as thick as cream, then take a woolen rag, made up into a shape suitable to rub the work with, and dip it into the rotten-stone, rubbing the varnish until all the brush marks are obliterated, and it then assumes a smooth, polished surface. Have a sponge and water handy, so that you can wash off the surface from time to time, to see if the object is accomplished; and when you have rubbed away every trace of a ridge that has been made by the brush on the surface of the varnish, the work of rubbing is over, and you must now wash the work entirely clean, and then apply a coat of wearing varnish, as before directed.

The most common difficulty that arises about rubbing paint or varnish is, that we do not give it a sufficient time to dry hard before we commence rubbing down. Again, paint or varnish that rubs down well will not wear on account of the necessity there is of adding more turpentine, which entirely evaporates from the paint, leaving less glutinous oil for holding the paint on to the wood. The fact of making paint or varnish easier to work by destroying its wearing quality, is a great temptation to the workman to get praise as a fancy workman at the expense of the wearing quality of his work. This last difficulty is avoided on the carriage-part by following the directions for laying on the paint as we have given them, and by so doing it obviates the difficulty of making paint brittle in order to have it rub down easy; also saves time, and makes a handsomer job.

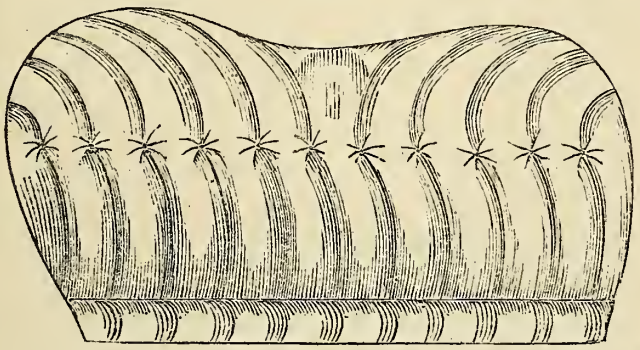
In conclusion, we wish to say that the limits prescribed to this volume prevents us going into detail as to the nature of paint or colors, and varnish, the mode of manufacturing, the causes of their decay, &c., all of which are necessary to be understood before we can form a good judgment about the use of them. Wherever it has been necessary for me to give my opinion contrary to that generally prevalent, it has been done, founded on my experience as a mechanic in the branch of business on which I have endeavored to write. H. H.

[In the forthcoming volume we intend to present our readers with a series of articles of the character alluded to in the closing paragraph above. Perhaps our ingenious correspondent can be induced to prepare them for us; if not, we must try our hand at it. The value of such matter, in connection with the many articles on painting already published in these volumes, cannot be overestimated.—Ed.]

Trimming Room.

LINING FOR THE BACK OF A FAMILY CARRIAGE.

FOR this novel design for trimming a family carriage, we are indebted to an attentive correspondent. Instead



of the diamond-formed plaits usually made at the top, the top and bottom pipes are divided by a row of buttons or tufts, and reversed, as shown in the engraving.

The New York Coach-Maker's Magazine.

NOVEMBER 1, 1862.

E. M. STRATTON, Editor.

COACHMAKERS SHOULD BE MORE SOCIABLE.

OUR motto for this Magazine, from the commencement in June, 1858, has been, professedly, a devotedness "to the Literary, *Social*, and Mechanical Interests of the Craft." We have tried our best to carry out the principles included therein, and believe that our efforts have not been altogether in vain. A comparison of our first with the present volume, will show that at the present time there is a greater readiness exhibited on the part of contributors to favor an interchange of thought and opinion, the tendency of which is to promote art among us. This growing sociality it shall be our endeavor to encourage.

By the term "social" we must not be understood (as some may have erroneously inferred) as in any form advocating the visionary speculations or theories of such among us as are called Socialists, and suspected of semi-infidel doctrines; but as being the strenuous promoters of a more friendly interchange of mechanical ideas, such as shall forever prove the falsity of the general asservation, that "two of the same trade can never agree." Located as carriage-makers principally are, in the larger towns and cities, they might practice a daily interchange of opinions and a free exchange of courtesies—the one calculated to improve scientific art, and make business more profitable; the other to increase the pleasures of, and make life more agreeable. To those more secluded in the rural districts, these opportunities may not present themselves; but the disadvantages under which they are situated may be in a great degree removed by the monthly visits of a periodical like ours, which is designed to reflect all through the length and breadth of this country the most improved and fashionable phases of metropolitan carriage-making. Stultified as some minds are against admitting it, still the fact "sticks out" in all directions, that New York City is the emporium of fashion—the Mecca to which all her votaries in this Western world turn their faces. But we are digressing.

In the cities where coach-making is most extensively carried on, as in New York, New Haven, Boston, Newark, Rahway, Philadelphia, &c., where several shops are found in close proximity, a room might be engaged and paid for by voluntary contributions, where once a week at least the members of the different branches of the craft—bosses, journeymen, and apprentices—could be privileged to meet in the evening for the discussion of scientific matters, calculated to increase and enlarge their ideas in the pursuit of mechanical knowledge. The discussion of these questions should be directed by rules and regulations suited to circumstances. Models of patents, and samples of iron, varnishes, and almost everything going to make up a carriage, would constitute a miniature museum, at once interesting and instructive. A small charge might be made for the introduction of models, and patentees could afford to pay for the benefits they would receive in their increased sales, while the entrance charges would help to pay room-hire. These meetings would afford a good opportunity for exposing trickery and rascalities on the part of worthless venders of pretended inventions, and graceless scamps whose present business is "to seek whom they may devour," led on by their father, the devil—those who are too lazy to work for an honest living, and yet not so idle but that they will find time to prowl around among, and fleece the craft out of the reward of many hard years of labor and toil. The free *ventilation* of the vile character of these vermin would cement the honest portion of the craft into a band of friends, whose combined wisdom would soon devise measures for driving them from our midst very speedily. As matters stand at present, in our editorial capacity *we* cannot safely *fit a strait-jacket* for any of these fellows separately, without being involved in a lawsuit, where, if we worst them, we are saddled with the costs of court, since these humbugs rarely have any money, although they strut about in the finest fabrics—under false pretences of payment—*sponged* out of industrious and confiding tailors. In the comparative privacy of these meetings these dishonest individuals could be amply shown-up for the benefit of all interested, and this, too, so effectually

and safely that they would sneak away to their obscure dens on the "double quick," never again to be heard of.

We have not sufficient room for enlarging upon this fruitful subject, and must be contented with merely throwing out these few crude thoughts, which we hope some of our correspondents will take in hand and *polish* for the public good. We invite them to do this with more earnestness, because all the trade-societies heretofore formed among coach-makers in America, for certain reasons, have proved miserable failures. Let us try some other plan. We need something to foster a more social disposition among us, and we are quite certain that something, of the character we have designated, would very much tend to accomplish that object. Let us, as fellow-craftsmen, be more united, more sociable, less exclusive in our habits and dispositions, and less vulnerable to the attacks of our common enemies.

CLOSE OF THE FOURTH VOLUME.

This number completes the Fourth Volume of this Magazine, and ends the greater proportion of the terms for which our subscribers have paid. The first number of the Fifth Volume will be issued in January next, previous to which we hope to find that our friends have renewed their subscriptions. It is the invariable rule of this Office to place no one's name on our books until the subscription is paid. This policy is the only safe one for ourselves and real friends. We contemplate making some important improvements in the next volume, which our readers will find out when they see the work itself, but which we have not space to detail here.

The price of single subscriptions will remain the same, at $3 per year; for two copies, sent to one address, we have concluded to charge only $5, and three copies will be furnished a year for $7, if sent in before the first of February. No single number will be sold for less than 30 cents. This change is made in justice to our regular subscribers, who have actually paid to us by the year more than some dealers have charged their customers when paying only by the month. This practice will now cease, and under no circumstances be repeated. Friends, please note our new address, send in your subscriptions, and receive the Magazine monthly during 1863.

LITERARY NOTICE.

The Atlantic Monthly, with which we have so frequently of late made our readers acquainted, is again on our table. The October number is a very interesting one, and worthy the support of every true friend of American literature. We know of no foreign Magazine that can at all bear comparison with it, either in paper, press-work, or literary worth. The Cooper Institute, where nearly every publication in existence is on file, will present an opportunity for verifying what we assert, should any skepticism on this subject still exist.

EDITORIAL CHIPS AND SHAVINGS.

Steel for Tires.—The attention of our readers is called to the advertisement of Messrs. Joel Farist & Co., which appears on the third page of the cover, this month. Having used their steel in our own manufactory, and tried it in wear for four years, we are prepared to recommend it as the best for light tires ever used.

A Frenchman's opinion of New York Vehicles.—What follows is extracted from *Lettres sur les Etats Unis d'Amerique*, just published in Paris. Lieut.-Col. Ferri Pisani, the traveling companion of Prince Napoleon in his visit to this country in 1861, tells his fellow aid-de-camp, Col. Franconnière, who remained in France, that—

"There are hardly any private equipages in New York, but the carriages for hire are very numerous, very good, very clean, very swift, and not too dear. The omnibuses are wonderful for number, and far superior to those of Paris; rapid as the wind, drawn by two nimble, spirited, well-broke horses. One of the fine things in this country is its race of horses. I have not seen one that is clumsy, ugly, or frightfully deformed, like those that sadden the eye in Paris. They are all in perfect condition and richly harnessed. I do not know what they do with the limping, lean, and wounded ones. In the streets you see none but fat, shining, mettlesome beasts, that seem to have more need of the rein than of the lash."

Statistics of Carriage-making in New York City.—According to the Industrial Census of New York City for 1860, just published, there are 32 carriage and coach establishments, with investments of $179,800; costs of raw material $169,069; 565 male hands employed, the annual product of which is $599,825. Of wagon-makers and wheelwrights, there are 58 shops; capital $217,295; cost of raw material $229,524; hands employed 503; value of annual products $623,985.

The F. F. V.'s Humbugs.—A chaplain in the National army, who has recently visited every part of Virginia, says that there are very few of the so-named first families seen in that State at the present time, and gives us an example of their degeneracy by stating, that having been invited to attend an evening party at the house of a very wealthy slaveholder, there was only one spring carriage made its appearance, and nearly half the ladies came in common wagons drawn by one or two yokes of oxen.

Ducunt Sarmatici barbara plaustra boves!

Carriage-roads in the Central Park.—The carriage-roads in the Central Park are nine miles in length, not in a straight line, but by a circuitous route, over hills, dales, and bridges, presenting a variegated scenery, unsurpassed in America. During the past year 467,849 pleasure-takers in carriages visited this popular resort. Any person who can afford it is, under proper rules, allowed the free use of his carriage over these grounds, or rather roads. The poorer *sovereigns*, whose name is legion, will be accommodated with carriages at a reasonable charge, on applying to the Commissioners.

Hammer and Tongs—in battle.—A correspondent says that, in the late battle of Antietam Creek, the rebels fired from cannon, at Burnside's division, the contents of a blacksmith's shop—hammers, tongs, chisels, &c. A German artillerist, seeing the tools falling around him, cried out: "We shall have the blacksmith's shop to come next!"

Doings of the Spring Manufacturers.—On Tuesday, the 30th of Sept., the spring manufacturers held a meeting at the Astor House, appointing W. S. Charnley, Esq., Chairman, and Wm. C. Lineburg, Esq., Secretary. On that occasion the condition of the trade was fully discussed, and a resolution adopted raising the price of springs one cent per pound "in consequence of the rise in exchange," and reducing the time for giving credits to four months, with a reduction of five per cent. when paid within fifteen days after filling orders. This fixes the price for best English steel springs at 19 cents for all over 1½ in. plates, and 20 cents per pound for all under that width. An attempt was made to fix the price of labor to be paid, but finally that matter was left to "the law of supply and demand." The following firms were represented:

Samuel Mowry, manufacturer of carriage springs, axles, paper machinery, &c., Greenville, Ct. (Norwich); Henry Taintor, of the Killingworth Manufacturing Company, Clinton, Ct.; W. S. Charnley, President of the Iron and Steel Works, Birmingham, Ct.; Barhydt & Greenhalgh, Schenectady, N. Y.; Hanibal Green, Troy, N. Y.; W. C. Lineburg, Secretary of the Tomlinson Spring and Axle Company, Bridgeport, Ct.; Davis W. Shuler, Amsterdam, N. Y.; Joseph Gatehell, Rahway, N. J.; William Wright & Son, Newark, N. J.; C. G. & H. M. Plimpton, Walpole, Mass.; S. Stanard, Agent Clinton Iron Company, Clinton, Ct.; William Rowland & Co., Philadelphia, Pa.

Cure for a Jibing Horse.—A writer in *Wilkes' Spirit of the Times* says he noticed a horse with a fine, large, open forehead, and bright, clear eyes, showing no sign of vice or stubbornness, coming up street, harnessed to a light, open express-wagon, and at a corner he suddenly "balked," nor could he be indueed to move after a merciless beating, from the brutal driver, with a barrel stave, for at least ten minutes. A gentleman who saw the difficulty went up to the horse, and quieted him by patting and soothing, and then stooped down, and, gathering a handful of dust from the roadway, thrust it into the horse's mouth, and then taking him by the head, the animal whom coaxing, pounding, and flogging failed to move stepped off as quietly and docile as a lamb.

Good Roadways, but Bad Sidewalks.—An American gentleman, now traveling in England, writes home that in the ancient borough of Kendall "the sidewalks are paved with cobblestones, and the centers macadamized. This," he continues, "is like everything else, for the roadway is chiefly for carriage-riding, and hence needs better care than plebeian footpaths. But the plebeians know a thing or two, and so they use the middle of the road also. Everybody walks there, and the sidewalks are left for rainy days and green Yankees. My greenness, that bit of it remaining, soon left me, and I took the aristocratic, and found that the *in medi iter* [middle course] was the pleasantest, if not the safest, as it is usually."

India Rubber Omnibus.—A Connecticut Yankee has invented an omnibus of india rubber, which, after being "jam full," will still afford room for at least a couple more. This is a *vast* improvement over the old 'bus, which, it was generally understood, after it was full could *only* take in one more passenger.

[Reported expressly for the New York Coach-maker's Magazine.]

AMERICAN PATENTED INVENTIONS RELATING TO COACH-MAKING.

July 16. Improved Clasp for Harness Tugs.—J. S. Gilman, of Tecumseh, Mich.: I claim the application of a screw pressure to the holding of the tug or large straps in and for harness, and more readily adjusting the same by means of the screw metallic box and wedge, as shown in the above specifications and the accompanying drawings, or in any other form substantially producing the same results.

Improved Fastening for Securing Traces to Whiffletrees.—B. D. Reed, of Independence, Iowa: I claim as an improved article of manufacture, a trace loop or cock-eye, provided with a tube, B, and spring, C, and otherwise made as herein shown and described.

22. Improved Trace Fastening.—L. H. Turner and H. H. Mix, of Meriden, Conn.: We claim the rod or shaft, D, provided with the pendant lip, *e*, and thumb-piece, E, in combination with the box, C, spiral spring, *b*, and draw iron, B, with or without the stop, *i*, all arranged and applied to the whiffle-tree, substantially as and for the purpose set forth.

Improved Wood-Bending Machine.—Samuel Kingsland, of Lyndon, Wis.: I claim, *First*, The application to wood-bending of hollow cylindrical forms, constructed, arranged, and operated as herein described. *Second*, The construction and arrangement of the metal plates, C C′C″, in combination with the hollow cylinder, A B, arranged thereon and secured together by the cross braces, *a′ a′*, and cross tie, *m′*, with their journals and journal bearings, crank, *e*, door, *h*, draught hole, *b*, and pipe, *c*, all arranged in the manner and for the purpose specified. *Third*, The peculiar means of adjustment for the feed rollers, *a a a a*, by means of the projections, *n r*, and *r′*, set screws, *g*, and sliding boxes, *m*, all being arranged, constructed, and operating in the manner and for the purpose specified. *Fourth*, A wood-bending machine, combining a heated cylinder or cylindrical forms, supported by plates, C C′C″, or equivalent means, with their means of adjustment as described, supplied with fuel, and heated in the manner described, and operated by a crank or other equivalent means, substantially as and for the purpose described.

August 5. Improvement in Machinery for Bending Wood.—Robert Fitts, Jr., of Fitchburg, Mass.: I claim, *First*, The pattern, or former, G, in connection with the chain, H, and pressure rollers, F F′, constructed and arranged for joint operation, substantially as and for the purpose herein set forth. *Second*, The particular manner of constructing the chain, as herein shown and described, to wit: by means of links formed of a cap, *q*, and lining, *h*, riveted together, and connected by shackles, *l*, and sliding bars, *a*. *Third*, The combination of the cam, D, pressure rollers, F F, pattern and former, G, and chain, H, arranged to operate as and for the purpose specified.

Improvement in Machinery for Turning Irregular Forms.—A. B. Hendryx, of Seymour, Conn., and Franklin Farrel, of Ansonia, Conn.: We claim the rotary cutter, H, attached to the bar or lever, E, secured in the hollow shaft, C, of the driving pulleys, D, in combination with the sliding pattern, L, and sliding and rotating stock, V, arranged substantially as and for the purpose herein set forth.

We further claim the particular arrangement of the slide, N, plate, O, with the stock, V, attached, and shaft, P, together with the collar, R, wormed wheel, S, and nut, T, on shaft, P, and the sleeve, Q, attached to slide, N, with the stop, *n*, on the bed, A, for the purpose of admitting or producing the two movements of the support, U, as set forth.

12. Improved Can for Oils, Varnishes, &c.—E. T. Woodward, of Charlestown, Mass.: What I claim as a new article of manufacture is the above-described can, A, and box, B, combined, the box being cut away for the passage of the neck, *a*, of the can, substantially as described.

OFFICE BUSINESS.

ILLUSTRATED

CARRIAGE CHARTS.

THE OFFICE OF THE

NEW YORK MAGAZINE

is prepared to print a great variety of

Fashionable Charts, Cards, &c.,

from the size of a common letter sheet to that of a large poster. In making up Illustrated Charts, we can bring any number of designs into requisition, and can border the manufacturer's card with from eight to one hundred cuts, attaching the price and number of each, or otherwise, as the manufacturer chooses.

Cuts of Buildings, Portraits,

AND

ESPECIAL DRAFTS OF CARRIAGES,

made to order, and inserted.

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Persons wishing to order Drafts, of especial styles, will be served with Working Drafts, fully explained, and colored, if desired.

HARDWARE DEALERS,

Wishing to obtain fine Cards, embellished with architectural designs, or illustrated with appropriate cuts, either engraved or lithographed, can order them through the Magazine Office.

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PORTRAITS, BUILDINGS,

Patent Illustrations, Advertising Cuts, &c.,

done with neatness and dispatch by addressing this office.

PAMPHLETS.

Finely illustrated Pamphlets and Circulars, for Coach-Makers, Dealers and Furnishers, printed in good style.

COMMISSION BUSINESS.

Coach Makers sending Cash Orders to New York, can transact their business through the

MAGAZINE OFFICE.

We shall also connect ourselves with

FIRST CLASS HOUSES,

in all sections of the country, for the accommodation of such as wish to order

SUPERIOR MATERIALS,

THROUGH OUR AGENCY.

Magazine Office,

106 Elizabeth Street, New York.

The Proprietor of this Magazine has on hand for sale,

DOLE'S SELF-CENTERING

HUB BORING MACHINES,

at the manufacturer's prices.

Machines with capacity to work on Hubs varying from 2¾ up to 8½ in. at the end, ...	$15 00
Same sized machines, furnished with a large set of jaws, extra, with capacity to work on Hubs ranging from 2¾ up to 14 in. in diameter,	18 00
A still larger and heavier one, for the largest kind of truck wheels,	20 00

Transportation only added to the above prices.

NAME PLATES

furnished to order, of different patterns, for from $16 00 to $20 00 per hundred.

E. M. STRATTON,

Manufacturer and Dealer in Carriages,

106 Elizabeth Street,

NEW YORK.

LET IT BE KEPT BEFORE THE

PEOPLE!

THAT

HENRY MOORE, JR.

Still continues to Manufacture at the old Establishment,

No. 329 Broome & 121 Chrystie Street,

Any and every variety and quantity of

SASH AND SASH DOORS

That may be ordered, at the very shortest possible notice, and in the most neat and substantial manner. Orders from the Country solicited.

BRIDGEPORT

Plating and Furnishing

ESTABLISHMENT.

WHITE & BRADLEY,

No. 28 CANNON STREET,

MANUFACTURERS OF

COACH AND CARRIAGE HARDWARE

AND

TRIMMINGS.

We would invite especial attention to our large and splendid assortment of COACH LAMPS, BANDS, DOOR-HANDLES, CURTAIN ROLLERS, NAME PLATES, SILVER & JAPAN'D KNOBS, SILVER & IVORY NAILS, JAPAN'D BUTTONS, DO. NAILS, CURTAIN LIGHTS. SILVER & LEAD MOULDINGS, ORNAMENTS, ROSETTES, CALASH TRIMMINGS, SILVER & JAPAN'D BUCKLES; also, PEASE'S Patent HEADLIGHTS for Locomotives.

PLATING with Silver, Brass and Princes Metal, neatly executed, at short notice.

A general assortment of Malleable Castings kept constantly on hand.

Orders from Dealers and others solicited.

T. P. WHITE. M. W. BRADLEY.

THE TOMLINSON

SPRING & AXLE COMPANY,

Cannon St., Bridgeport, Conn.,

Manufacture Coach and Carriage Tempered Springs, Mail, Half Patent and Taper Case-Hardened Axles. We are the ONLY authorized manufacturers of E. M. Stratton's Improved Mail Patent Axles. Orders promptly filled on reasonable terms.

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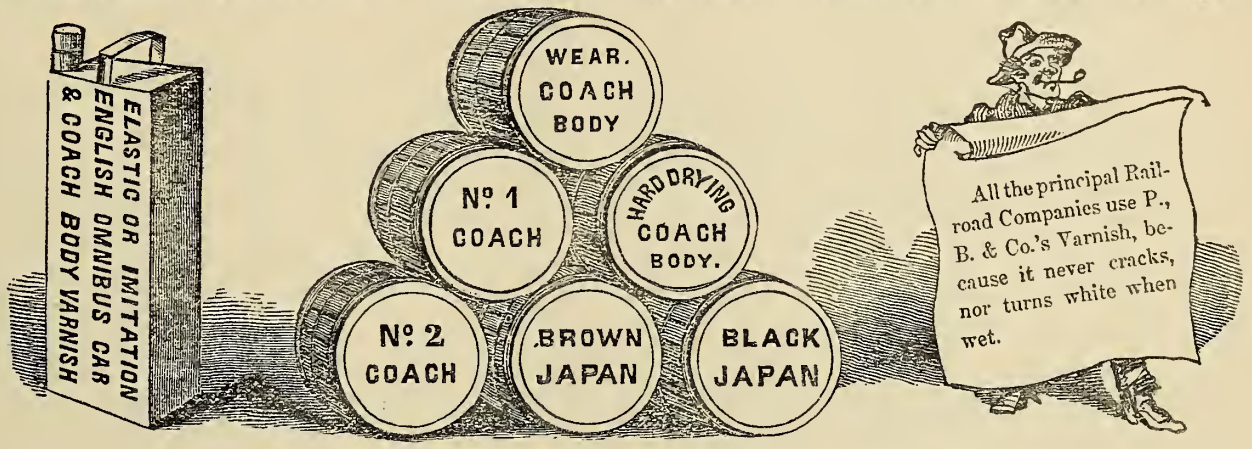
MANUFACTURERS OF SUPERIOR COPAL VARNISHES,



No. 275 RAILROAD AVENUE, NEWARK, NEW JERSEY.

Constantly on hand a large supply of all the various kinds of Furniture Varnishes, also, White Copal (as is white), for inside Work, Dammar, &c.

THE CELEBRATED

AYERS' MOUNTAIN BITUMINOUS

COAL,

(From the 14 feet vein, being the largest of Pure Coal ever discovered.)

It is warranted to be **entirely free from Sulphur and all other Impurities,** consequently invaluable for

COACH WORK, BLACKSMITHS' & STEAM PURPOSES.

It is far superior to any other Coal sold in this market, and having made extensive arrangements to receive it regularly, are prepared to sell and deliver it, directly from Vessels or from our Yards, in quantities to suit customers, at low prices.

FELTER & BROMLEY,

YARDS,

163 Chrystie St., near Delancey,

90 East Broadway, near Market St.

Dealers supplied on liberal terms.

NOTICE OF REMOVAL.

NEWARK, N. J., May 1, 1859.

Gentlemen:—We beg to inform you that we have removed to our new premises, (next the Inclined Plane, in Summit Street,) and that our facilities for manufacturing Hubs of every description, are now perfect.

We have a larger stock of Elm, Gum and Oak Hubs on hand than ever before, manufactured with care, of the very best Timber; and we shall continue, as heretofore, to fill orders at the shortest notice, which our unequaled stock enables us to do with better seasoned work than can be obtained elsewhere.

We thank you for past favors, and solicit a continuance of your orders. Yours, respectfully,

WILLIAM MILES & CO.

☞ Please make a memorandum of the change of location.

London, 33 Dowgate Hill.
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JOSEPH KOHNSTAMM,

MANUFACTURER OF ULTRAMARINE,

AND IMPORTER OF

ENGLISH AND FRENCH PAINTS,

Artists' Colors and English Varnishes,

No. 3 Tryon Row, City Hall Square,

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Photographing & Engraving,

By PRICE'S PATENT PROCESS.

Parties wishing illustrations of Carriages, Lamps, Springs, Axles, or any improvements in the above-mentioned articles, can have them furnished at short notice by forwarding Drawings, Photographs, Ambrotypes or Daguerreotypes, of the objects they wish to represent.

I Photograph directly upon the wood, thus dispensing with the expensive services of the draughtsman.

Catalogues of Carriages furnished at short notice. All work warranted to give satisfaction.

C. J. B. WATERS,

90 Fulton St., up stairs, N. Y.

I am permitted to refer to the Proprietor of this Magazine, who has availed himself of this process in illustrating this Work.

PIERSON & ROBERTSON,

MANUFACTURERS OF

COPAL VARNISHES,

Cor. Chestnut St. & Railroad Ave.,

JAMES PIERSON, ELIAS C. ROBERTSON. } NEWARK, N. J.

Transparent Elastic Varnish for Japanners, always on hand and warranted.

F. REYNOLD,

(Formerly Reynold & Korb,)

MANUFACTURER OF

EMBOSSED SILVER COACH HANDLES,

CRESTS, ROSETTES,

Harness Ornaments, and Letters for Companies,

No. 32 Mechanic St., Newark, N. J.

☞ A splendid assortment of the Newest Patterns constantly on hand.

S. P. SMITH,

Original Manufacturer of

NEWARK

VARNISHES,

AT THE OLD STAND,

os. 319, 321 & 323 Mulberry Street, ewark, N. J.

After *an experience of twenty-four years* in manufacturing Varnish, and having increased my facilities for its manufacture so as o *keep* 20,000 GALLONS, I feel confident of my ability to supply a Varnish which *the trade may rely upon*, as being a *superior article*, and as low as the *same quality* can be afforded by any other manufac urer.

N. B.—My patrons, no doubt, will agree with me that one of the causes of our present financial pressure has been long extended credits; therefore, in future, six months will be the limit.

A continuance of your orders is respectfully solicited.

OUTSIDE VARNISHES.		INSIDE VARNISHES.	
Best Wearing Body for Bodies, Cars and Omnibusses,	$4 00	White Dammar, for Zinc Paint, &c., - - -	$1 75
Hard Drying, do. do.	3 25	Furniture, Picture, -	2 75
Coach Body, extra light shade, - -	2 75	Polishing, extra light shade,	3 25
No. 1, Coach or Carriage,	2 50	Flowing, for finishing coats,	2 75
No. 2, do. do.	2 25	Polishing, quick drying,	2 75
Black Asphaltum, -	1 50	Light Furniture, - -	2 25
Drying Japan, - -	1 00	Paper Varnish, - - -	2 00
Leather Varnish, - -	1 25	No. 1, Furniture, quick drying, - - - -	2 00
		No. 2, Furniture, do. do.	1 80
		No. 3, do. do. do.	1 60
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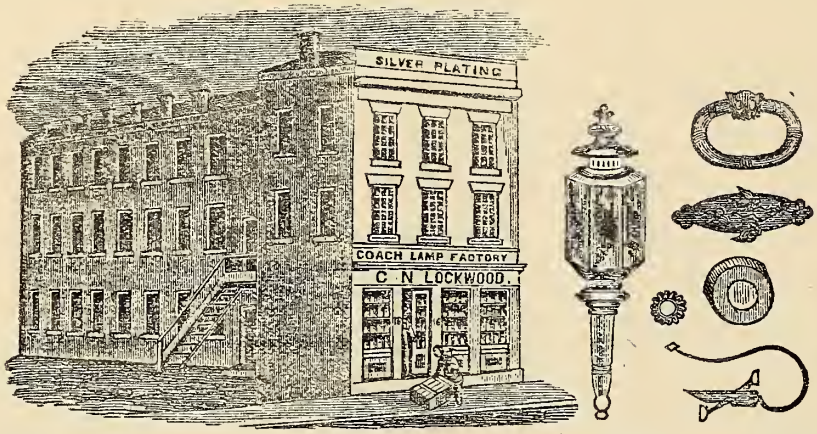
At six months, less six per cent. for Cash, delivered or shipped in Newark or New York, free of charge.

Packages returnable in good order at prices charged.

Office cor. Maiden Lane & Water St., New York.

N. B.—All Orders address Newark, N. J.

Newark, January 1st, 1858.



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Coach Lamp

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The Largest Assortment in the United States,

Embracing over 190 different sizes and patterns of

COACH & BUGGY LAMPS.

ENGINE & SIGNAL LAMPS,

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Constantly on hand, at Wholesale and Retail.

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MANUFACTURERS OF SUPERIOR

Rail Road Omnibus Coach Buggy & Cart

SPRINGS

opposite the Chesnut Rail Road Depot,

NEWARK, N.J.

CARY & YOUNG,

No. 1 MECHANIC ST., Newark, N. J.,

MANUFACTURERS OF

COACH LAMPS

COACH-MAKERS'

Hardware & Ornaments,

OF EVERY DESCRIPTION,

CONSISTING IN PART OF

Coach Lamps, Pole Hooks,

BANDS,

HANDLES, TOP PROPS,

MOULDING,

CALECHE FIXTURES,

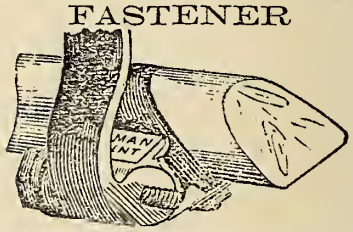
Rosettes, Knobs, &c., &c.

Plated Dashes and Side Handles.

Coach-Makers and Dealers will find our assortment of Lamps and Ornamental Trimmings unexcelled in the United States for quality, variety, or style.

Five First-Class Silver Medals have been awarded to this "Anti-Rattler," and IS THE ONLY ONE whose merits have ever received such encomiums.

CHAPMAN'S PATENT ANTI-RATTLING CARRIAGE SHAFT FASTENER



is the *cheapest* and the *only permanent* remedy for the rattling noise, and *insures* entire *safety* at the Shaft Joint. The fact, of every set of the 100,000 now in use giving the most *unequivocal satisfaction*, is an Enduring Monument of the True Merit of the Anti-Rattler, when placed in a proper Shaft Clip, (such as I am prepared to furnish). It is unqualifiedly pronounced the *best proportioned, neatest and most perfect* Shaft Coupling extant, by Carriage-makers who are *acknowledged* as the *first* in the country.

Under my own personal observation, several sets are operating perfectly at this time, which were applied in June, 1855. Address

WM. S. CHAPMAN, Patentee,
Cor. 3d and Vine Sts.,
CINCINNATI.

August 1st, 1859.

M'CURDY'S IMPROVED PATENT WHIP SOCKET.

This Whip Socket, having received the approbation of the principal Carriage Manufacturers in New York City for the last three years, is now offered to the Carriage-Makers throughout the United States, in full confidence that it will be found, on trial, better calculated for being secured to a carriage, or holding a whip than any other yet invented.

Prices plain or silver mounted, $5 per doz.

Address P. M'Curdy, 97 Jane Street, New York.

The Proprietor of this Magazine will supply cash orders at manufacturer's prices.

HAYDEN & LETCHWORTH,

AUBURN, N. Y.

MANUFACTURERS OF

Coach Laces, Carriage Trimmings,

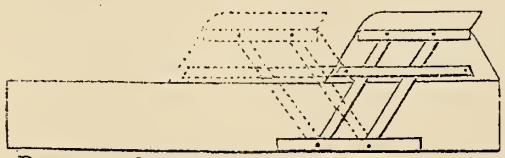
BENT SHAFTS, POLES AND BOWS,

OF SUPERIOR QUALITY.

Patent and Enameled Leathers and Cloths, of the best make and finish; also, Axles, Bands, Philadelphia Bolts, with every variety of Carriage and Saddlery Hardware and Trimmings, all of which we offer to Carriage-Makers at the Lowest Market Prices.

COOK'S ADJUSTABLE SEAT BUGGY,

Patented by George & David Cook, of New Haven, Conn., Feb. 3, 1857.



This Buggy is aeknowledged, by all who have used and seen it, to be the most perfeet in principle of any shifting seat carriage before invented, combining, as it does, all qualities desirable in a Buggy, such as symmetry, convenience, durability and lightness, and is very easy of construction, much more so than any sliding seat can be made, and not liable to get out of order, and, as will be seen by above cut, is a perfect carriage in either form. A better illustration and description will be found on page 39 of the July number of this Magazine. The right to use this invention, either for State, County, or Shop rights, can be procured by application to G. & D. Cook & Co., New Haven, Conn.

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SILK TWIST,
MACHINE NEEDLES,
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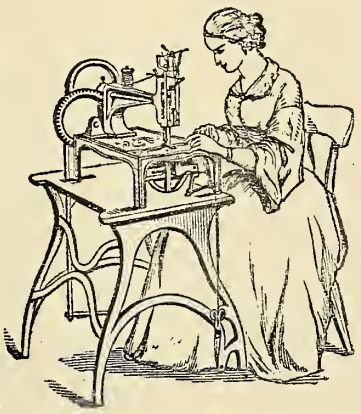
Of various kinds, and all articles connected with

SEWING AND **Stitching Machines.**



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BRANCH OFFICES,
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We believe we have deservedly acquired the reputation of manufacturing the best articles in our line in the Country.

Our Springs are made from the best ENGLISH SPRING STEEL, (which is made expressly for us from Sweede's Iron,) and are all thoroughly tested before they leave the Factory. Our Axles are of the best Salisbury Iron, and our Carriage Trimmings are made in the latest and most approved styles.

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EDWARD STERLING, }
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Wheel, Spoke and Hub Manufactory.

F. LATHROP & SON,

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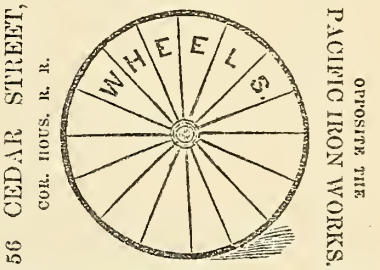

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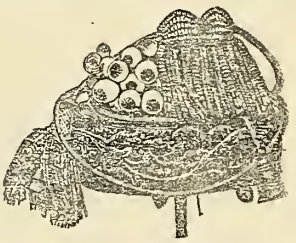

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Coach Body, light shade,	Flowing,
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Carriage, best quality,	Damar,
" No. 2,	Piano Forte,
Japans,	Blk. Asphaltum.

OUR ANGLO-AMERICAN Body Varnish—A new article, to which we would call especial attention. It has been *thoroughly tested,* and found to hold its *gloss* and *wear* as long as the best English Varnishes.

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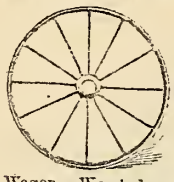

Manufacturers of

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of every description, from the lightest Buggy to the heaviest Coach, or even a California Mule Wagon. We pledge ourselves not to be beat by any other establishment in the United States, either in material or workmanship.

We SAY we can turn out the very *best Wheels* in the country, and if the trade will just try us, we will PROVE it to the satisfaction of any reasonable Carriage-maker.

Orders thankfully received and promptly executed.

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Makes from the best seasoned red and white rock-elm timber, Fashionable and superior morticed and unmorticed HUBS, at short notice and on the most reasonable terms. Orders respectfully solicited.

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Having purchased the entire term of BLANCHARD'S PATENT, are now prepared to execute orders for every description of

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FROM SELECTED. SEASONED

Jersey White Oak and Hickory Timber.

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NEWARK VARNISHES,

AT THE OLD STAND,

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ONE HUNDRED CUTS OF CARRIAGES,

Furnished for your office for FORTY CENTS in stamps, by mail or otherwise.

We have for sale, at this office, a very fine

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Also, Skeleton Wheels, for Trotting-Buggies.

The Factory is at the Rubber Establishment formerly occupied by Charles Goodyear, ten minutes' ride by Canal Road from New Haven.

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See the February and August numbers of this Magazine for notices of it.

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All goods of our manufacture, including our

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AND

PATENT BEVELED BANDS,

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In New York City they are constantly sold by the following well-known merchants:

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The Iron used in manufacturing is of the best American Magnetic Iron, and the subscriber, from twenty years' experience in the business, hopes, by personal supervision, to be enabled to give perfect satisfaction to all who may favor this establishment with their patronage.

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Hub Manufactory

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We have a larger stock of Elm, Gum, and Oak Hubs on hand than ever before, manufactured with care, of the very best Timber; and we shall continue, as heretofore, to fill orders at the shortest notice, which our unequaled stock enables us to do with better seasoned work than can be obtained elsewhere.

We thank you for past favors, and solicit a continuance of your orders. Yours, respectfully,

WILLIAM MILES & CO.

☞ Please make a memorandum of the change of location.

The Best Lining Nail in Use

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Spokes Finished and Unfinished, Hubs, Rims, Sawed Felloes,

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which, for lightness and durability, excels all other wheels made.

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I, James D. Sarven, hereby certify that the NEW HAVEN WHEEL CO., *per Henry G. Lewis, Secretary*, and Messrs. WOODBURN & SCOTT, of St. Louis, Mo., have the exclusive right to manufacture my PATENT WHEEL and sell the same as an article of merchandise to those not owning shop-rights.

JAMES D. SARVEN.

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BROWN JAPAN VARNISH.

NEW YORK, July 1, 1860.

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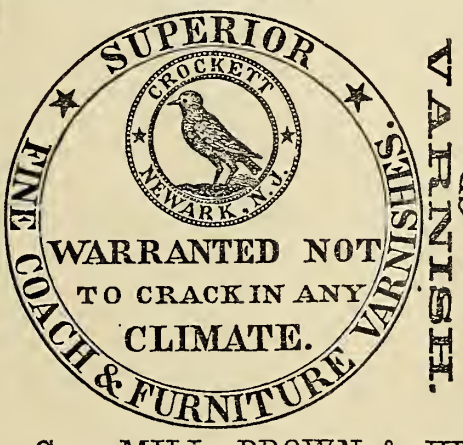

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☞ Orders through the mail, when accompanied with the cash, or satisfactory references, will receive immediate attention.

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A variety of shades of LAKE, French, English, and German; FLAKE WHITE, and all other colors required for carriage-work.

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To be had of all Dealers in Carriage Trimmings.

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FOR MEASURING DISTANCES PASSED OVER BY VEHICLES.

Patented by A. T. HOWARD, July 3, 1860.

For NEATNESS, ACCURACY, AND DURABILITY, they are UNEQUALED by any in the market.

For descriptive circular, &c., address, **IVES & PARDEE MF'G CO.,**
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WAREHOUSE, No. 16 BEEKMAN STREET, New York.

MANUFACTORY, MOTT HAVEN, N. Y.

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For a strong and desirable Bolt or Nut, the first requisite is a strong and durable Iron, of even quality, AND NOT SO SOFT AS TO BE LIABLE TO HAVE THE THREAD STRIP, under any strain; no Iron yet made has a better reputation for this than the Norway or Swedish Iron; and as this Company manufacture their own Iron, from ore identically like the ore from which the famous Danamora Iron of Sweden is made, and by a process which produces a very strong and tenacious Iron, more even in quality than any other now known; and as no expense has been spared in providing skillful workmen with the most approved appliances for producing and finishing a FORGED BOLT AND FORGED NUT,—the Company feel confident in the assumption above made.

The peculiar properties claimed for their Bolts and Nuts, are as follows, viz.:

First.—That they are made of a superior quality of tough Iron, sufficiently hard to prevent the thread of the Bolt from stripping, thus avoiding the too common error of selecting too SOFT an IRON. *Second.*—That the thread of the Bolts is cut in exact mathematical proportion to the size of Iron from which it is made, and is of a shape that will stand the greatest strain. *Third.*—That every NUT WILL FIT ANY BOLT of the size for which it is intended, a feature very much desired by those who use them. *Fourth.*—The goods, instead of being put in bundles as usual, are put up in strong paper boxes, each label being stamped with the above trade mark of the Company, to counterfeit which is BY LAW a FELONY, and any imitation thereof will be prosecuted by this Company.

The LIST PRICES of this Company are the same as PHILADELPHIA; and the Discount will be AS LIBERAL as any house in the trade, for the same quality of goods.

Orders are solicited for these goods, from CARRIAGE BUILDERS, as well as DEALERS, and to that end they are invited to examine and test the same at the Warehouse of the Company.

WILLIAM RIDER, President.

The Largest Band Manufactory in the United States.

HANNAH & STORM,

423, 425, and 427 Main Street, Poughkeepsie, N. Y.

OFFICE in NEW YORK, at OLIVER, HANNAH & CO., 104 *JOHN STREET, directly opposite Cliff Street, where a stock of our Spokes, Spindles, Bands, &c., may be found.*

Sole Manufacturers of the Patent Champion Band, for all kinds of Axles,

To which they would respectfully call the attention of Dealers. It having received the decided approval of practical Carriage Builders, as a substitute for and a very great improvement on the ordinary Screw-Front Band.

We are also Manufacturing an endless variety of other styles of Bands, among which we would enumerate—

6	Different	Patterns	of Screw Bands.
7	"	"	Philadelphia Bands.
12	"	"	Open or Rim "
15 to 20	"	"	Other Styles, both Brass and Silver.

Also, 7 different patterns of Close Plated.

☞ Orders respectfully solicited, and attended to with care and dispatch.

HICKORY SPOKE FACTORY, POUGHKEEPSIE, N. Y.

ESTABLISHED 1855.

Purchasers of Hickory Spokes in want of a first-quality article, manufactured from Seasoned Timber, are respectfully informed that the subscribers have a Splendid Stock on hand, and are constantly manufacturing on Blanchard Machines, all the different sizes, and are prepared to fill orders promptly. ☞ Orders solicited.

HANNAH & STORM.

CARY & YOUNG,

Coach Lamp Manufacturers,

AND SILVER PLATERS,

102 East Houston Street,

NEAR BOWERY, NEW YORK.

On hand, a large variety of the latest styles of Coach Lamps, Hub Bands, Pole Hooks, Top Props, Handles, Ornaments, Mouldings, Caleche Fixtures, Spring Barrels, Curtain Frames, Locks, Knobs, &c., &c.

Carriage Trimmings.

JOHN P. JUBE & CO.,

83 Bowery, New York,

Keep constantly on hand a large assortment of choice

Saddlery & Coach Hardware,

Together with a well-selected Stock of the most approved manufacturers' PATENT LEATHER, Japanned Curtain Cloth, warranted Steel Springs, Patent, Half Patent, and Plain Axles, Bolts of superior quality, Hubs, Spokes, Bent Rimbs, Shafts, Poles and Top Bows, Coach Varnish and Japan, Curled Hair, Moss, &c.

PATENT HOMOGENEOUS CAST STEEL,

FOR

Carriage Axles and Tires.

SHORTRIDGE, HOWELL & CO.

Patentees and Sole Manufacturers of Howell's Patent Homogeneous Cast Steel.

THIS STEEL IS THE ONLY SUITABLE MATERIAL FOR LIGHT AXLES AND TIRES, COMBINING THE TOUGHNESS OF IRON WITH TWICE ITS STRENGTH, AS HAS BEEN THOROUGHLY TESTED BY THE PRINCIPAL CARRIAGE MAKERS IN THE UNITED STATES.

Consumers are requested to observe that every bar is stamped "**Shortridge, Howell & Co.,**" as well as "**Homogeneous Cast Steel,**" as spurious imitations marked "Homogeneous," have been issued by other establishments.

It can be procured in lots to suit purchasers at the subscriber's store ONLY.

DUNCAN LITTLEJOHN, Agent,

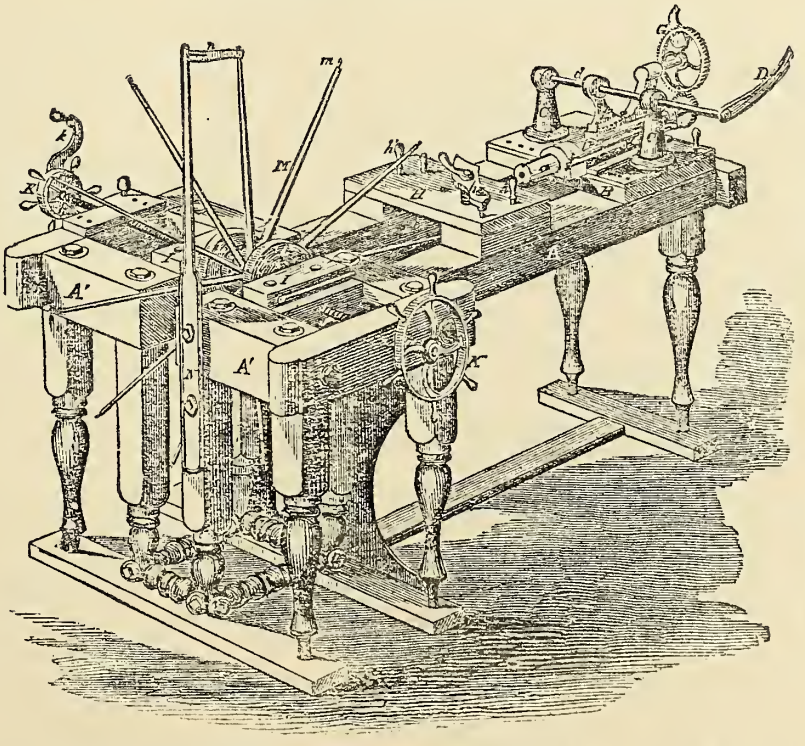
24 CLIFF STREET, NEW YORK.

THE GUARD WHEEL MACHINE.

(PATENTED OCTOBER 20th, 1857.)

This machine combines within itself all the parts requisite for the putting together and fitting into their proper places, TRUE and EXACT, all the different portions of a Carriage-wheel; and the operation is very simple. It is constructed upon an entirely different principle from any heretofore invented for the purpose, as it enables the operator to put the wheel together entire, without changing the location of the hub, thus entirely doing away with the numerous changes necessarily attending the ordinary way. They are intended to be worked by hand, but can be operated by power, with equal advantage and economy, if desired. For circulars, giving a more complete description, with over one hundred references to those now using these machines, address

C. H. GUARD, Troy, N. Y.



FROM THE SCIENTIFIC AMERICAN, APRIL 17, 1858.)

We have seen the hubs bored and mortised, the spokes driven in and tenoned, and the fellocs bored, of three sets of wheels, of six large wheels and six small ones, in between six and seven hours, by one man, on these machines. We believe that it is one of the most useful machines for Carriage Builders and Wheelwrights ever yet produced.

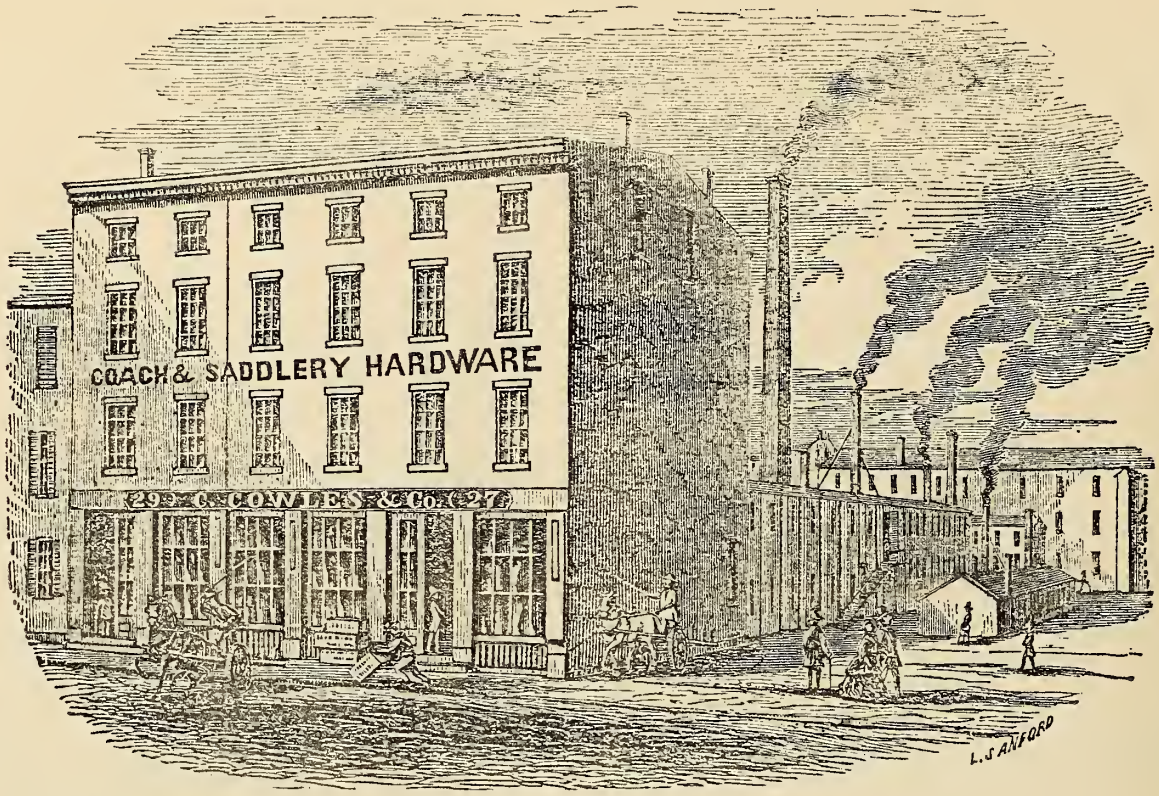
NEW YORK, April 20, 1858.

C. H. GUARD: Dear Sir,—After giving your Wheel Machine a thorough practical trial, we are convinced that we can make a wheel much superior to those made solely by hand, and at a great saving of cost. Its compactness of form, simplicity of construction, and the ease and precision with which it works, and the absolute certainty that the work is well done, must certainly make it a fixture in every carriage shop; to us it is invaluable.

Yours, truly, BREWSTER & CO., 372 and 374 Broome St.

C. H. GUARD, Original and Sole Inventor, Vender, and Patentee, Troy, N. Y.

MANUFACTURED AT TROY, N. Y., BY THE PATENTEE.



C. COWLES & CO.,

29 ORANGE ST., New Haven, Conn.,

EXTENSIVE MANUFACTURERS OF

COACH TRIMMINGS

AND

Furnishing Hardware.

Also, Manufacturers and Dealers in every description of Wood-Work, such as

CARVED AND PLAIN CARRIAGE PARTS,

Bent Stuffs, Seats, Bodies, Hubs and Spokes

They also manufacture a superior article of

NUTS, TURNED COLLARS, DASHES,

AND

COACH LAMPS,

And keep on hand a magnificent assortment of **LACES, LEATHERS, CLOTHS, DAMASKS, SILKS, COTELINES, TASSELS, FRINGES, SPEAKING-TUBES, CORDS, TWINES, STUFFING MATERIALS,**

And, in fact every variety of article in the trade, usually kept by

FIRST-CLASS FURNISHING HOUSES.

The Manufacturing List

Comprises the following articles, with many others,

In the Trimming Line:

☞ **A superior article of Spring Rollers, Curtain Frames of every pattern, Japanned Buttons of all colors Solid and Filled Boot and Finishing Nails, Knobs of all kinds, Lead Mouldings, Buckles, and Ivory Articles of all kinds, Knobs, Screws, Nails, Handles, Slides, &c.**

In the Finishing Line:

POLE YOKES & CRABS,
HUB & SAND BANDS,
STUMP JOINTS,
CAPPED NUTS,
TURNED COLLARS
DOOR HANDLES,
NAME PLATES,
ORNAMENTS &c.

With many other articles in their line.

WOOD WORKS.

Their Bent Seat Rails, Turned Sticks, Frame Seats, Spring Bars, Spokes, Hubs, Felloes, Shafts, Bows, Poles, and everything in that line, are of the *Choicest Eastern Timber.*

A fine assortment of Carved Opera Boards on hand.

Address orders to

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NEW HAVEN, CONN.

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CARRIAGE & AXLE

MANUFACTURER,

South Egremont, Mass.,

Respectfully asks the attention of Carriage-makers to his

Superior Patent, Half Patent, Collins Taper, Improved Taper, and Screw

AXLES,

and particularly to the

Improved MAIL AXLE, with Oil-cup attached,

which keeps the Axle at all times in the finest running condition, with the smallest amount of trouble, simply by putting the oil in the cup once a week (pure Sperm), removing the wheel from the Axle only when the leather washers require to be renewed.

The liability to Heating and Sticking is wholly removed from these Axles, and they are undoubtedly the best Axle extant for running and carriage with ease and safety.

From over thirty years' experience in the use of Carriage Axles, the subscriber is competent to furnish an article perfect in its proportions and qualities.

From his numerous patrons he would respectfully submit but two names, which he feels will be sufficient to secure the confidence of all Builders of Carriages wanting a good Axle.

"After several years' use of the different styles of Axles, manufactured by David Dalzell, we cheerfully recommend them as worthy the confidence of the best class Carriage-builders.

"Geo. W. Watson, Chestnut St., Phila.
John R. Lawrence, 354 Broadway, N. Y."

Agents for the sale of the above Axles:

Messrs. Bouton & Smith, 67 Bowery, N. Y.. Messrs. Lawrence, Bradley & Pardee, New Haven, Conn., Jesse Lee, 37 South Fourth Street, Philadelphia.

Orders thankfully received and promptly executed, and all Axles warranted.

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No. 1 Mechanic St., Newark, N. J.,

Manufacturers of

COACH LAMPS,

COACH MAKERS'

Hardware and Ornaments

Of every Description, consisting in part of

Coach Lamps, Pole Hooks

BANDS,

HANDLES, TOP PROPS,

MOULDING,

Caleche Fixtures,

Rosettes, Knobs, &c., &c.,

Plated Dashes and Side Handles.

Coach-Makers and Dealers will find our assortment of Lamps and Ornamental Trimmings unexcelled in the United States, for quality, variety, or style.

A CHART,

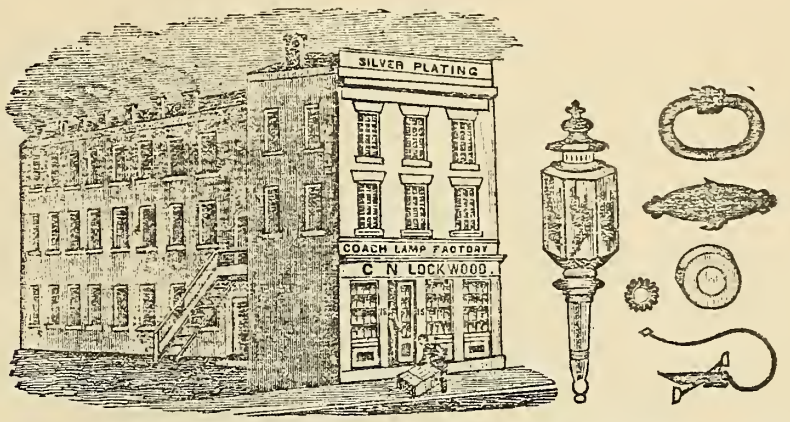
10¼ BY 13 INCHES,

with TWENTY-FOUR CUTS OF CARRIAGES, for Sale at 12 cents per copy, at this office. Ordered by mail, will be 15 cents in stamps.

The Best Lining Nail in Use,

IS THE PATENT HANSELAIN.

It is made by the IVES & PARDEE Manufac'g Co. To be had of all Dealers in Carriage Trimmings.



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Coach Lamp

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16 Mechanic Street,

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The Largest Assortment in the United States,

Embracing over 190 different sizes and patterns of

COACH & BUGGY LAMPS,

Engine and Signal Lamps,

COACH & CANTEL MOULDINGS,

CURTAIN FRAMES, DASHES.

RAILINGS, BRANCH IRONS,

Handles, Pole Hooks, Tuft Nails, &c. &c.,

Constantly on hand, at Wholesale and Retail.

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SMITH & BARLOWS,

John Street, Bridgeport, Conn.,

Manufacturers of Bent Felloes, Carriage Bows, Shafts, Poles, and all kinds of Bent Carriage and Sleigh Timber. We have at our command the very best quality of Timber, and can fill orders on short notice, as we keep a heavy stock of Felloes, Bows, &c., constantly on hand.

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MANUFACTURER OF

SUPERIOR

VARNISHES,

Cor. Railroad Avenue and Tichenor St.,

NEWARK, N. J.

Orders will receive prompt personal attention, and all goods delivered or shipped in Newark or New York free of charge.

We respectfully solicit the patronage of those who are making first-class carriages.

We believe we have deservedly acquired the reputation of manufacturing the best articles in our line in the country.

Our Springs are made from the best ENGLISH SPRING STEEL (which is made expressly for us, from Swedes Iron), and are all thoroughly tested before they leave the Factory. Our Axles are of the best Salisbury Iron, and our Carriage Trimmings are made in the latest and most approved styles.

Edward Sterling, }
Caleb B. Tichenor, }

E. STERLING, Sec'y.

GEO. W. BILLINGS,

No. 34 LIBERTY STREET, NEW YORK,

Offers to the Trade, and Carriage and Coach-makers,

HOMOGENEOUS CAST STEEL,

FOR

TIRES, AXLES, AND SPRINGS.

This Steel is made expressly for Carriage work, and warranted. The Axles are forged from the ingot, with the collar solid, so that no forging is necessary to make a perfect job.

The Steel, when manufactured into Springs, will sustain from 15 to 20 per cent. more weight from each pound of Steel used, than any other Spring in use.

The following list of Goods is offered to the Trade at

LOW PRICES FOR CASH OR APPROVED CREDIT.

Tires, of all sizes, from ¾ by ⅛ inch and upwards.

Axles, all sizes, from ⅝ inches diameter to 3 inches.

Springs, from 20 to 50 inches, any weight required.

Half oval Steel, for fifth-wheels, from ⅝ to 1½ inches.

Common Axles of all sizes.

Common Springs of all sizes.

☞ ORDERS PROMPTLY EXECUTED. ☜

GEO. W. BILLINGS,

No. 34 Liberty Street,
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THOMPSON PRICE & CO.,

MANUFACTURERS OF

COPAL VARNISH,

NO. 308 MULBERRY STREET,

NEWARK NEW JERSEY.

All ORDERS promptly attended to, and Shipped in New York, free of charge.

JAMES M. POST,

B. F. HARRISON, Manager,

(Late Harrison & Breese,)

MANUFACTURER OF

Patent and Common Carriage AXLES

(Entrance in the Alley to J. M. Quimby & Co.'s Coach Factory),

Rear of 11 Fair Street,

NEWARK, N. J.

Also dealer in

SPOKES, SPRINGS AND CARRIAGE HARDWARE.

☞ Those who have so long and deservedly admired the Axles manufactured by the former firm of Harrison & Breese, will, on trial, find my Axles possessing all the good qualities of those made by the old firm.

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STINSON, VALENTINE & CO.,

VARNISH MANUFACTURERS,

36 INDIA STREET, BOSTON, MASS.

J. F. ANDERSON,

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Prices per doz. for re-cutting bus tard files.

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14	2 50
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Coach-makers and others, can have their old files re-cut equal to new, if sent by Express or otherwise, to Haverstraw (or New York, care of E. M. Stratton), and returned promptly; the expenses of transportation only being added to the annexed list.

And for all under 9 in., $1.37 per doz.

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Carriage Wood-Work Manufact'y,

No. 3. MECHANICS' BLOCK,

WM. T. SCRANTON,

IS NOW PREPARED TO FURNISH AT SHORT NOTICE,

CARRIAGE PARTS, CARVED AND PLAIN,

SPRING BARS, do. do.

SHAFTS, POLES, SEATS,

SEAT-RAILS,

SEAT-ARMS,

&c., &c.

☞ Send for Circular to **Wm. T. SCRANTON,**
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TO CARRIAGE MAKERS and OTHERS DEALING IN AXLES.

The undersigned manufactures Collinge Patent, Half Patent, Mail Patent, Taper and Case Hardened Axles, at the Manufactory, 223 RAILROAD AVENUE, corner OLIVER ST., NEWARK, N. J.

The Iron used in manufacturing is of the best American Magnetic Iron, and the subscriber, from twenty years' experience in the business, hopes, by personal supervision, to be enabled to give perfect satisfaction to all who may favor this establishment with their patronage. THOMAS BREESE, AG'T,
Late of the Firm of Harrison & Breese.

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Keep constantly on hand a large assortment of choice

Saddlery and Coach Hardware,

Together with a well selected stock of the most approved manufacturers' Patent Leather, Japanned Curtain Cloth, warranted Steel Springs, Patent, Half Patent and Plain Axles, Bolts of superior quality Hubs, Spokes, Bent Rimbs, Shafts, Poles & Tap Bows, Coach Varnish and Japan, Curled Hair, Moss, &c.

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Patent Shaft, Shackle and Clip Combined,

The attention of Carriage-makers and others, is called to this Shaft-Coupling, as being the best article in the market, being the most durable and noiseless of any Shaft-shackle ever offered to the trade. For Sale by the Patentee, GEORGE KENNY, Milford, N. H., and also at the Carriage Hardware Store of

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Alfred H. Bonnell & Co.,

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every variety of Mail, Half-patent, Taper and Plain Axles, case-hardened or soft.

We, in addition to the above, manufacture Axles from Patent Steel, which can be made very light and at the same time are safe and small, rendering them very suitable for very light carriages.

☞ Orders addressed to 210 Market street, Newark, N. J., will receive prompt attention.

ALFRED H. BONNELL,
DAVID McMILLAN.

☞ PERSONS WHO WANT THE ☜

GUARD WHEEL MACHINE

can order through the Publisher of this Magazine, who will see that they have one got up perfect, and at the Patentee's prices. I actually believe that, in a factory where much work is done, it can be made to pay for itself in one year's use.

CHARLES C. DUSENBURY,

DEALER IN EVERY DESCRIPTION OF

COACH AND CARRIAGE

HARDWARE & TRIMMINGS,

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Carriage and Wagon Manufacturers will find at this house all the materials they may require in their line of business, at the lowest prices, and on accommodating terms, such as Axles, Springs, Bolts, Hubs, Spokes, Felloes, Shafts, Bows, &c. Also, all kinds of Patent Leathers, Cloths, Damasks, Silks, Carpets, Threads, Tacks, Curled Hair, Mosa, Varnishes, Japan, &c. These goods are selected with care, and with the express end in view of giving satisfaction to the public. *Silver and Brass Plating done.*

☞ Orders through the mail, when accompanied with the cash, or satisfactory references, will receive immediate attention.

S. P. SMITH,

Original Manufacturer of

NEWARK

VARNISHES,

AT THE OLD STAND,

Nos. 319, 321, & 323 Mulberry Street, Newark, N. J.

BEST QUALITY OF WEARING BODY VARNISH

After *an experience of twenty-five years* in manufacturing Varnish, and having increased my facilities for its manufacture so as to *keep* 20,000 GALLONS, I feel confident of my ability to supply a Varnish which *the trade may rely upon*, as being a *superior article*, and as low as the *same quality* can be afforded by any other manufacturer.

OUTSIDE VARNISHES.

Wearing Body for Bodies, Cars and Omnibusses.
Hard Drying, do. do.
Coach Body, extra light shade.
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No. 2, do. do.
Black Asphaltum.

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Drying Japan.
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INSIDE VARNISHES.

White Dammar, for Zinc Paint &c.
Furniture, Pictore.
Polishing, extra light shade.
Flowing, for finishing coats.
Polishing, quick drying.
Light Furniture.
Paper Varnish, for walls.
No. 1, Furniture, quick drying.
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Scraping Varnish, do. do.

At six months, less six per cent. for Cash, delivered or shipped in Newark or New York, free of charge.

Packages returnable in good order at prices charged.

Office cor. Maiden Lane & Water St., New York.

N. B.—All Orders addressed Newark, N. J.

NEWARK, June, 1859.

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Silver Plater,

Rear of 247 GRAND STREET, near the Bowery,

Manufactures to order, and keeps constantly on hand, all kinds of plated Carriage Hardware and Trimmings. Saddle and Harness Makers will also find a full assortment of Terrets, Hooks, &c., of the latest styles.

☞ Dashes, Axle-nuts, and other Jobs left at this shop will be plated expeditiously, neatly, and on very reasonable terms. Please give me a call.

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I Photograph directly upon the wood, thus dispensing with the expensive services of the draughtsman.

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MANUFACTURED AT

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Hubs of all kinds mortised to order.

☞ Orders thankfully received and punctually attended to.

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Subscribers at a distance, who cannot send their volumes to this city to have them bound, can have the covers sent to them by mail, by sending their orders to the office of the Magazine.

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Successors to Felter & Bromley,

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Of the following kinds:

Red, White and Pink Ash, Lehigh, Locust Mountain, Liverpool Cannel, and the celebrated George's Creek, Cumberland, for manufacturers' and Family use, constantly in yard and discharging from boats.

Yards, **No. 168 Chrystie St., near Delancey, and No. 90 East Broadway, near Market St., N. Y.** Terms Cash.

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MANUFACTURED BY

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Carriage-parts, plain, 5 pieces to set,	$1 50	to	$2 00
" " carved, 5 pieces "	2 00	to	5 00
Spring Bars, plain, per dozen,	1 80	to	2 50
" " carved, "	3 50	to	6 00
Coach and Buggy Poles, "	12 00	to	24 00
Shafts, per dozen pairs, - - -	9 00	to	15 00
Buggy Bodies, without Seats, -	2 50	to	20 00
Buggy Seats, per piece, - - -	1 25	to	3 50
Whole Seat Rails, bent, per dozen,	3 50	to	4 50
" Arms, " "	75	to	1 50
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Bent Circular Seat Backs, Bows, rounded or left square, Seat Spindles, Opera Boards, Skeleton-parts, &c., &c., on hand and made to order.

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G. F. KIMBALL,

Manufacturer of every description of warranted

CARRIAGE WHEELS,

from the lightest Baby-Wagon up to the finest Trotter, top Buggy and Coach; also DEALER IN STOCKS, Spokes, Gum Hubs and Eastern Hickory Rims, suitable for fine Varnished Wheels.

Carriage Building, State-st., cor. Grove,

July, 1858. *New Haven, Conn.*

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Carriage Hardware & Trimmings,

PAINTS, OILS, BRUSHES, &c.,

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Patent Black, Chrome Green, Quaker Green, Lamp Black, Emerald, Green, Chrome Yellow, Prussian Blue, Paris Blue, Dutch Pink.

A variety of shades of Lake—French, English and German—Flake White, and all other colors required for Carriage-work.

N. B.—Our assortment of Carriage Hardware and Trimmings, is as good as can be found at any Establishment in the city, and our prices will continue as reasonable as heretofore.

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DEALERS IN

Coach and Carriage Hardware, and Trimmings,

Axles, Springs and Bolts, Malleable Castings, Screws, Hubs, Felloes, Bows, Shafts, Plain and Patent Leather, Cloth, Damasks, Buckram, Silks, Carpet, Thread, Buttons, Tacks, Paints, Oils, Varnishes, &c., Silver and Brass Plating.

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The undersigned will continue the Varnish business on the same premises lately occupied by Bigelow & Price, Nos. 316 and 312 Mulberry Street, Newark, N. J., where he now has, and intends to keep constantly on hand, a large stock of all kinds of Varnishes.

From a personal inspection and close supervision in the manufacture of Varnishes for the past eleven years, he flatters himself to believe, that he can furnish the various kinds of Varnishes, which, for working and flowing freely, durability and brilliancy, cannot be surpassed by any manufactured in the Union.

The undersigned respectfully solicits a continuance of the favors extended to the late firm.

MOSES BIGELOW.

HAYDEN & LETCHWORTH,

AUBURN, N. Y.

MANUFACTURERS OF

Coach Laces, Carriage Trimmings,

BENT SHAFTS, POLES AND BOWS,

OF SUPERIOR QUALITY.

Patent and Enameled Leathers and Cloths, of the best make and finish; also, Axles, Bands, Philadelphia Bolts, with every variety of Carriage and Saddlery Hardware and Trimmings, all of which we offer to Carriage-Makers at the Lowest Market Prices.

D. PRICE & FITZGERALD,

MANUFACTURERS OF IMPROVED

COPAL VARNISHES,

DANIEL PRICE, J. D. FITZGERALD. } **Nos. 315 & 317 Mulberry St., NEWARK, N. J.**

Coach Body Varnish, light shade.		Light Shade Flowing Varnish.	
Coach	do	Furniture Polishing	do
White Copal	do	Do No. 1	do
Damar	do	Do do 2	do
Black Japan	do	Do do 3	do
Brown Japan	do sure drier.	Scraping	do
Leather	do	Spirits Turpentine, Oils, etc.	

All orders promptly attended to, and shipped in New York free of charge.

One of the subscribers having had more than thirty years' experience in the use and sale of Copal Varnish, they are ready to warrant all articles of their manufacture pure and satisfactory, or may be returned.

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MANUFACTURERS OF SUPERIOR COPAL VARNISHES,

No. 275 RAILROAD AVENUE, NEWARK, NEW JERSEY.

Constantly on hand a large supply of all the various kinds of Furniture Varnishes, also, White Copal (as is white), for Inside Work, Dammar, &c.

LARGEST BENDING ESTABLISHMENT IN THE UNITED STATES.

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BENT FELLOES,

SHAFTS, POLES,

AND ALL KINDS OF

BENT CARRIAGE AND SLEIGH TIMBER,

Nos. 54, 56 and 58 Mechanic Street,

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The manufacturer, being himself a practical Carriage Maker, feels that he is well qualified to give general satisfaction to both Dealers and Manufacturers who may favor him with any order for articles in his line.

THE LARGEST

Hub Manufactory

IN THE

UNITED STATES.

NOTICE OF REMOVAL.

NEWARK, N. J., May 1, 1858.

Gentlemen:—We beg to inform you that we have removed to our new premises, (next the Inclined Plane, in Summit Street,) and that our facilities for manufacturing Hubs, of every description, are now perfect.

We have a larger stock of Elm, Gum and Oak Hubs on hand than ever before, manufactured with care, of the very best Timber; and we shall continue, as heretofore, to fill orders at the shortest notice, which our unequaled stock enables us to do with better seasoned work than can be obtained elsewhere.

We thank you for past favors, and solicit a continuance of your orders. Yours, respectfully,

WILLIAM MILES & CO.

☞ Please make a memorandum of the change of location.

BRIDGEPORT

Plating and Furnishing

ESTABLISHMENT.

THOMAS P. WHITE & CO.,

No. 28 CANNON STREET,

MANUFACTURERS OF

COACH AND CARRIAGE

HARDWARE

AND

TRIMMINGS.

We would invite especial attention to our large and splendid assortment of COACH LAMPS, BANDS, DOOR-HANDLES, CURTAIN ROLLERS, NAME PLATES, SILVER & JAPAN'D KNOBS, SILVER & IVORY NAILS, JAPAN'D BUTTONS, DO. NAILS, CURTAIN LIGHTS, SILVER & LEAD MOULDINGS, ORNAMENTS, ROSETTES, CALASH TRIMMINGS, SILVER & JAPAN'D BUCKLES; also, PEASE'S Patent HEADLIGHTS for Locomotives.

PLATING with Silver, Brass and Princes Metal, neatly executed, at short notice.

A general assortment of Malleable Castings kept constantly on hand.

Orders from Dealers and others solicited.

T. P. WHITE. M. W. BRADLEY.

PIERSON & ROBERTSON,

MANUFACTURERS OF

COPAL VARNISHES,

Cor. Chestnut St. & Railroad Ave.,

JAMES PIERSON, ELIAS C. ROBERTSON, } **NEWARK, N. J.**

Transparent Elastic Varnish for Japanners, always on hand and warranted.

F. REYNOLD,

(Formerly Reynold & Korb,)

MANUFACTURER OF

EMBOSSED SILVER COACH HANDLES,

CRESTS, ROSETTES,

Harness Ornaments, and Letters for Companies,

No. 22 Mechanic St., Newark, N. J.

☞ Especial attention paid to manufacturing Coach Ornaments and Handles.

G. ROWDEN,

MANUFACTURER OF

FRINGE, CORD & TASSELS,

No. 291 Mulberry Street,

NEWARK, N. J.

Carriage Tassels, every variety, Cord and Tassels, for Footman Holders, Spring Curtain Tassels, Hearse Trimmings, Hearse Fly Nets, Speaking Trumpets, Holder Tassels, Inside Tassels, Acorn Trigger, Curtain Braids, Curtain Fringe, Glass Strings, Netting Cord, Gimp, Ball Tufts, Webbings, Rosettes, Frogs, &c., &c.

CARRIAGE HARDWARE

—AND—

TRIMMINGS.

CORNELIUS VAN HORN,

70 BEEKMAN STREET,

New York,

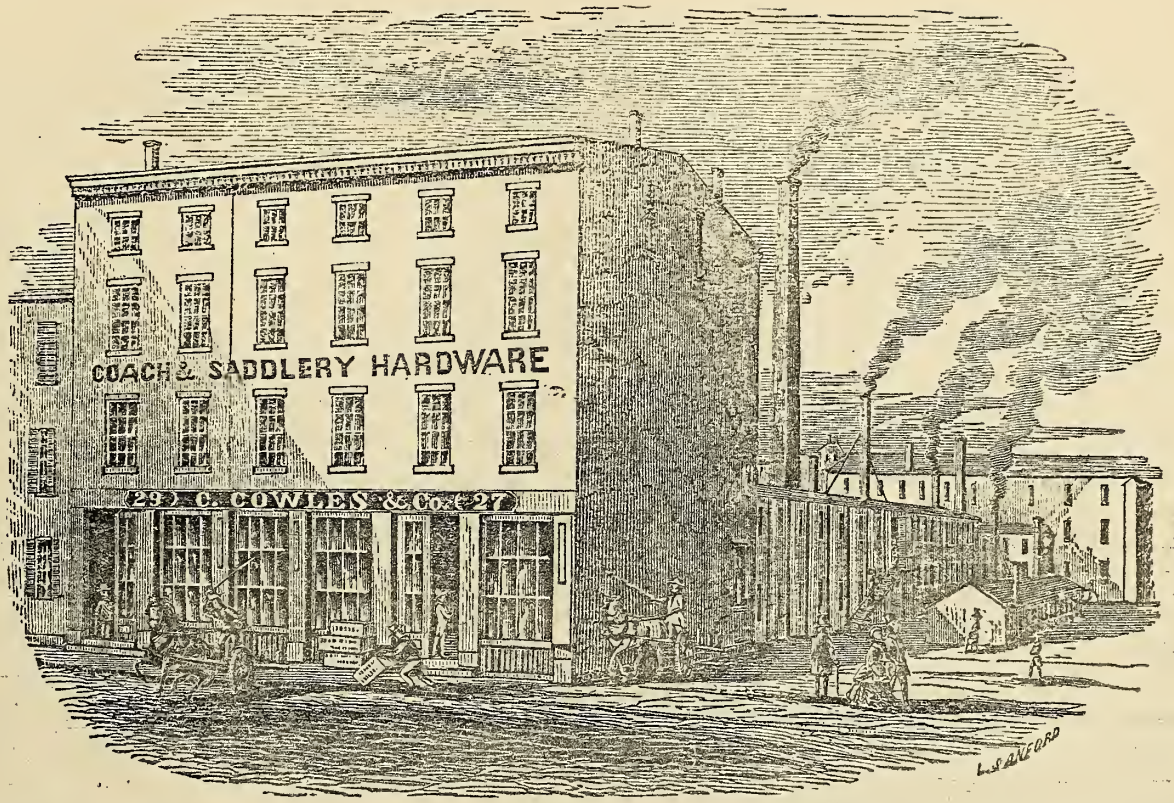
IMPORTER OF AND DEALER IN

Springs,	Dole's Hub Boring Machine,
Axles,	Enameled Leather,
Castings,	Patent Leather,
Philadelphia Bolts,	Enameled Cloth,
Wrought Axle Clips,	Oil Cloth,
Buggy Dashes,	Velvet Carpet,
Bent Rims,	Brussels Carpet,
Bent Poles,	Buckram,
Bent Shafts,	Plushes,
Bent Seat Rails,	Moss,
Carved Carriage Parts,	Curtain Frames,
Seat Spindles,	Spring Barrels,
Bows,	Top Props,
Lamps,	Barrels,
Lane's English Varnish,	Stump Joints,
American Varnishes,	Saunders' Patent Shaft Jacks,

and all other articles used in the manufacturing of Carriages and Sleighs.

C. V. H. would respectfully inform Carriage Makers, that he keeps a well-selected stock of Goods, used by the best class of Carriage Makers, and at the lowest market prices, for CASH, or approved notes.

CASH buyers will find it to their advantage to call and examine my stock before making their purchases.



C. COWLES & CO.,

29 ORANGE STREET,

New Haven, Conn.

EXTENSIVE MANUFACTURERS OF

COACH TRIMMINGS,

—AND—

FURNISHING HARDWARE,

Also, Manufacturers and Dealers in every description of Wood-Work; such as

Carved and Plain Carriage Parts,

BENT STUFFS, SEATS, BODIES, HUBS AND SPOKES.

They also manufacture a superior article of

NUTS, TURNED COLLARS, DASHES,

—AND—

COACH LAMPS,

And keep on hand a magnificent assortment of **Laces, Leathers, Cloths, Damasks, Silks, Cotelines, Tassels, Fringes, Speaking Tubes, Cords, Twines, Stuffing Materials,**

And, in fact, every variety of article in the trade usually kept by

FIRST-CLASS FURNISHING HOUSES.

THE MANUFACTURING LIST

Comprises the following articles, with many others

In the Trimming Line

☞ A Superior article of spring Rollers, Curtain Frames of every pattern, Japanned Buttons of all colors, Solid and Filled Boot and Finishing Nails, Knobs, of all kinds, Lead Mouldings, Buckles, and Ivory articles of all kinds, Knobs, Screws, Nails, Handles, Slides, &c.

In the Finishing Line

POLE YOKES & CRABS,	TURNED COLLARS,
HUB & SAND BANDS,	DOOR HANDLES,
STUMP JOINTS,	NAME PLATES,
CAPPED NUTS,	ORNAMENTS, &c.

With many other articles in their line.

WOOD WORKS.

Their Bent Seat Rails, Turned Sticks, Frame Seats, Spring Bars, Spokes, Hubs, Felloes, Shafts, Bows, Poles, and everything in that line, are of the CHOICEST EASTERN TIMBER.

A FINE ASSORTMENT OF CARVED OPERA BOARDS ON HAND.

Address orders to

C. COWLES & CO., New Haven, Ct.

WM. A. HEATH,

86 DUANE STREET, One Door East of Broadway, NEW YORK.

DEALER IN

CARRIAGE HARDWARE AND TRIMMINGS,

CLOTHS, DAMASKS, SILKS, FRINGES, LACES, SPRINGS, AXLES, WHEELS, FELLOES, SPOKES, HUBS, &c.

Particular attention paid to Orders.

ENAMELED CLOTHS, all colors and widths, of the best make.

Stimson, Valentine & Co.

have received the following

PRIZES

FOR

SUPERIOR VARNISHES.

Silver Medal at Boston .....1856.
Silver Medal at Boston .....1860.
Silver Medal at Baltimore.....1860.
Diploma at Portland.....1856.
Diploma at New York .....1859.
Diploma at Baltimore.....1859

JAMES M. POST,

B. F. HARRISON, Manager,
(Late Harrison & Breese,)

MANUFACTURER OF

PATENT & COMMON

CARRIAGE AXLES,

(Entrance in the Alley to J. M. Quimby & Co.'s Coach Factory),

Rear of 11 Fair Street,

NEWARK, N. J.

Also, dealer in

SPOKES, SPRINGS, & CARRIAGE HARDWARE.

☞ Those who have so long and deservedly admired the Axles manufactured by the former firm of Harrison and Breese, will, on trial, find my Axles possessing all the good qualities of those made by the old firm.

JOHN H. TUTTLE,

Dealer in all kinds of

CARRIAGE MATERIALS AND CARRIAGES,

No. 205 Pearl Street,

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SPRINGS and AXLES, Wholesale, at Manufacturers' Prices.

THE LARGEST

Hub Manufactory

IN THE

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We thank you for past favors, and solicit a continuance of your orders. Yours, respectfully,

WILLIAM MILES & CO.

☞ Please make a memorandum of the change of location.

NEW HAVEN, CONN.

MANUFACTURERS OF

WHEELS & WHEEL STUFFS,

Spokes Finished and Unfinished, Hubs, Rims, Sawed Felloes,

SPRING BARS PLAIN AND CARVED, WHIFFLETREES, SEAT STICKS, HANDLES, &c.,

On hand and made to Order, of the best of Eastern Timber. Also, manufacturers of

SARVEN'S PATENT WHEEL,

which, for lightness and durability, excels all other wheels made.

NEW HAVEN, May 16, 1860.

I, James D. Sarven, hereby certify that the NEW HAVEN WHEEL CO., *per Henry G. Lewis, Secretary,* and Messrs. WOODBURN & SCOTT, of St. Louis, Mo., have the exclusive right to manufacture my PATENT WHEEL and sell the same as an article of merchandise to those not owning shop-rights.

JAMES D. SARVEN.

For particulars in regard to the *PATENT WHEEL*, or shop-rights, address either of the parties.

HENRY G. LEWIS, Secretary.

CARRIAGE BODY MANUFACTORY

BARKER & BALDWIN,

No. 51 BROADWAY, New Haven, Ct.

All kinds of Heavy and Light Bodies made to Order, of as good Materials as the Market affords.

!! SOMETHING NEW !!

A simple plan of our invention for changing a one-seat into a two-seated body, is much admired, and has a rapid sale.

We are also applying Cook's Jump-Seat Patent to various styles of Rockaway Bodies, for sale.

Orders addressed to the above firm, will insure prompt attention.

JAMES P. BARKER. CHARLES A. BALDWIN.

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G. & D. COOK & CO., New Haven, Ct.; OSBORN & ADRIANCE, New Haven Ct.; HITCHCOCK & OSBORN, Richmond, Va.; G. C. DICKERMAN & CO., Natchez, Miss.; JOHN S. ATWATER, Columbus, Miss.

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50 Warren and 120 Chambers Street, New York.

MANUFACTURERS AND DEALERS IN

SADDLERY, HARDWARE, AND CARRIAGE GOODS,

PATENT AND ENAMELED LEATHERS AND CLOTHS, WOODWORK, AND ALL TRIMMINGS USED BY CARRIAGE BUILDERS.

HARNESS MOUNTING of all kinds. Orders by mail receive careful attention.

Carriage-Makers, Attention!

The just celebrity our goods have acquired for their uniformly fine quality, has led Carriage-Makers in all parts of the country to make special inquiry for them, when purchasing their stock of Bands and other Trimmings.

All goods of our manufacture, including our

PATENT BASSELAIN NAILS,

AND

PATENT BEVELED BANDS,

can be obtained of most of the leading merchants of the country, *as low as they can be bought of us.*

In New York City they are constantly sold by the following well-known merchants:

SWIFT, SEAMAN & CO.,
BOUTON & SMITH,
CORNELIUS VAN HORN,
M. B. VALENTINE & CO.,
JNO. P. JUBE & CO., and many others.

Those who have not tested the superior excellence of our work, are invited to do so.

IVES & PARDEE MF'G CO.

Coach-Makers' General Business Agency.

Address E. M. STRATTON, 106 Elizabeth Street, New York City.

THE demand upon us to execute orders for purchasing the various articles required by the Manufacturers of Carriages, induces the Publisher of this Magazine to establish, in connection therewith, a

GENERAL BUSINESS AGENCY.

The advantages of such an agency as ours, to the country carriage-making public, will readily be seen by those availing themselves of it, as it will at any time save them the trouble and expense of a trip to New York when a small article is wanted.

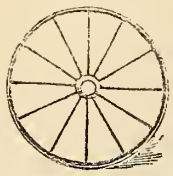
The Publisher, having had 24 years' experience in purchasing for his own manufactory in New York City, and being well acquainted with all the Dealers in Carriage Hardware, feels himself fully competent to discharge any order intrusted to him, with fidelity and dispatch. Those at a distance from the market, therefore, have only to remit the amount to be invested, or furnish us with satisfactory references, to obtain by Express or otherwise anything they may order, at the lowest retail prices; our commissions being paid by the dealer.

The Express charges of delivery and collection of bills, where the cash is not sent with the order, must be paid by the receiver of the goods. Letters of inquiry to inclose two red stamps.

NAUGATUCK WHEEL CO.,

NAUGATUCK, CONN.,

Manufacturers of



WHEELS

of every description, from the lightest Buggy to the heaviest Coach, or even a California Mule Wagon. We pledge ourselves not to be beat by any other establishment in the United States, either in material or workmanship.

We SAY we can turn out the very *best Wheels* in the country, and if the trade will just try us, we will PROVE it to the satisfaction of any reasonable Carriage-maker.

Orders thankfully received and promptly executed.

January, 1860. NELSON TULLER, Prest.

LARGEST BENDING ESTABLISHMENT IN THE UNITED STATES.

ISAAC B. KILBURN,

(FORMERLY BEDFORD, CRANE & CO.)

Manufacturer of

CARRIAGE BOWS,

BENT FELLOES,

SHAFTS, POLES,

And all kinds of

BENT CARRIAGE AND SLEIGH TIMBER,

Nos. 54, 56 and 58 Mechanic Street,

NEWARK, N. J.

The manufacturer, being himself a practical Carriage-maker, feels that he is well qualified to give general satisfaction to both Dealers and Manufacturers who may favor him with any order for articles in his line.

C. D. INGHAM,

MANUFACTURER OF

COACH, OMNIBUS & LIGHT-CARRIAGE HUBS!

Chittenango, Madison Co., N. Y.

Makes from the best seasoned red and white rock-elm timber, Fashionable and superior morticed and unmorticed Hubs, at short notice and on the most reasonable terms. Orders respectfully solicited.

THE ELIZABETHTOWN

STEAM MANUFACTURING CO.

LOCATED AT ELIZABETHPORT, N. J.,

Having purchased the entire term of BLANCHARD'S PATENT, are now prepared to execute orders for every description of

SPOKES

FROM SELECTED SEASONED

Jersey White Oak and Hickory Timber.

JAMES W. ANGUS,

Superintendent.

S. P. SMITH,

ORIGINAL MANUFACTURER OF

NEWARK VARNISHES,

AT THE OLD STAND,

Nos. 319, 321, & 323 Mulberry St., Newark, N. J.

MY EXPERIENCE OF TWENTY-SIX YEARS in manufacturing Varnish, and my facilities for keeping a STOCK OF 25,000 Gallons, enable me to supply the trade with a superior article. A continuance of your orders is respectfully solicited.

Outside Varnishes.	Inside Varnishes.
Wearing Body, for Bodies, Cars, and Omnibuses.	White Demar, for Zinc Paint, &c.
Hard Drying do. li't shade.	Furniture, Picture.
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At six months, less 6 per cent. for cash.

Delivered or shipped in Newark or New York free of charge.

☞ Packages returnable in good order, at prices charged.

Office, 132 MAIDEN LANE, one door above Water Street, New York.

N. B.—All Orders address Newark, N. J.

Newark, Sept. 1, 1860.

THE TOMLINSON

Spring & Axle Company,

Cannon St., Bridgeport, Conn.,

Manufacture Coach and Carriage Tempered Springs, Mail, Half Patent and Taper Case-Hardened Axles. We are the ONLY authorized manufacturers of E. M. Stratton's Improved Mail Patent Axles. Orders promptly filled on reasonable terms.

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WM. C. LINEBURG, Sec'y. S. B. FERGUSON, Jr., Treas.

A CHART,

WITH OVER

ONE HUNDRED CUTS OF CARRIAGES,

Furnished for your office for FORTY CENTS in stamps, by mail or otherwise.

We have for sale, at this office, a very fine

GUARD

WHEEL MACHINE,

which we will dispose of at a reasonable price. It is a superior machine, and complete; made expressly for us. Address the Editor.

CARRIAGE-WHEELS.

WARNER BROTHERS,

HAMDEN, CONN.,

MANUFACTURERS OF

COACH, CARRIAGE, SULKEY, BUGGY, ROCKAWAY,

AND BUSINESS-WAGON

WHEELS,

OF EVERY DESCRIPTION.

Also, Skeleton Wheels, for Trotting-Buggies.

The Factory is at the Rubber Establishment formerly occupied by Charles Goodyear, ten minutes' ride by Canal Road from New Haven.

Orders promptly attended to. Our work is made from the best thoroughly-seasoned Eastern Timber, and warranted equal to the best in market.

ALMON WARNER. LYMAN WARNER.

AMERICAN UNION

CHEMICAL BLACK

WRITING INKS.

Combining all the necessary qualities for permanency, this Ink is of greater fluidity in using than any other. At first writing it is blue, but soon changes to a beautiful jet black. Is not corrosive to the pen, or liable to mould, as with most inks. To guard against counterfeits, see that the manufacturer's autograph is on each bottle. Address all orders to

JESSE G. KEYS,

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TO CARRIAGE MAKERS & OTHERS DEALING IN AXLES.

The undersigned manufactures Collinge Patent, Half Patent, Mail Patent, Taper and Case-Hardened Axles, at the Manufactory, 50 McWHORTER ST, NEWARK, N. J.

The Iron used in manufacturing is of the best American Magnetic Iron, and the subscriber, from twenty years' experience in the business, hopes, by personal supervision, to be enabled to give perfect satisfaction to all who may favor this establishment with their patronage.

THOMAS BREESE, AGENT,

Late of the Firm of Harrison & Breese.

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YOUNG FARMER'S MANUAL,

A large 12mo. volume, of 459 pages, and 190 Illustrations,

DEVOTED CHIEFLY TO THE MECHANICAL PART OF FARMING.

It tells how to select good tools, and handle them with skill; and tells all about saws of all kinds, axes, augers, bits, chisels, planes, &c., and how to put them in order. Every young man will find this book of great value, whether he is a mechanic or a farmer.

See the February and August numbers of this Magazine for notices of it.

The illustrations cost nearly $400, and there is nearly twice the amount of reading that we usually get in dollar books.

Sent, post-paid, for $1.25, by the author,

S. EDWARDS TODD.

Lake Ridge, Tompkins Co., N. Y.

SWIFT, SEAMAN & CO.,

52 Warren and 122 Chambers Street, New York,

IMPORTERS AND MANUFACTURERS OF ALL KINDS OF

CARRIAGE AND SADDLERY HARDWARE.

A full assortment of finished Carriage Wood-Work. Also, Carriage Trimmings of all kinds.

WILLIAM TILDEN & NEPHEW,

Varnish Manufacturers,

115 NORFOLK STREET, NEW YORK,
45 VINE STREET, CINCINNATI, OHIO.

WITH A VIEW OF MEETING THE WANTS OF

COACHMAKERS AND CAR BUILDERS,

We have established a Manufactory exclusively for that branch of our business, and feel great confidence in offering them the following varieties of Coach Varnishes:

IMPERIAL WEARING BODY VARNISH.
HARD DRYING BODY VARNISH.
EXTRA COACH BODY (FOR R. R. CARS) VARNISH.
LIGHT SHADE COACH BODY VARNISH.
No. 1 COACH OR CARRIAGE VARNISH.
No. 2 COACH OR CARRIAGE VARNISH.
BROWN JAPAN VARNISH.

NEW YORK, July 1, 1860.

TRADE MARK.

SUPERIOR FINE COACH & FURNITURE VARNISHES
CROCKETT NEWARK, N.J.
WARRANTED NOT TO CRACK IN ANY CLIMATE.

TRADE MARK.

CROCKETT LEATHER CLOTH COMPANY
MANUFACTURED BY
J.R.& C.P.CROCKETT
ORIGINAL INVENTORS
A.D. 1849
12 Yds
NEWARK NEW JERSEY U.S.A.

VARNISH.

Cors. MILL, BROWN & HIGH STS., NEWARK, N. J.

J. R. & C. P. CROCKETT & CO.,

MANUFACTURERS OF

FINE COACH VARNISHES,

GUARANTEED EQUAL TO THE BEST ENGLISH.

JOHN R. CROCKETT, CALEB P. CROCKETT, JOHN B. CAMPFIELD.

J. F. ANDERSON,

Haverstraw, Rockland Co., N. Y.

Coach-makers and others, can have their old Files re-cut equal to new, if sent, by express or otherwise, to Haverstraw (or New York, care of E. M. Strattoon), and returned promptly; the expenses of transportation only being added to the annexed list.

And for all under 9 in., $1 37 per doz.

Prices per doz. for re-cutting Bastard Files.	
Inch.	$ Cts.
14	2 50
13	2 25
12	2 00
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10	1 50
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ALL KINDS OF

Carriage and Harness Mountings

Manufactured and for sale by

IVES & PARDEE MANF'G CO.,

Factory at Ives Station, Canal Railroad. MOUNT CARMEL, CONN.

Write for Price List, inclosing your business card.

CHARLES C. DUSENBURY,

Dealer in every description of

COACH AND CARRIAGE

HARDWARE & TRIMMINGS

No. 161 Bowery (near Broome St.), N. Y.

Carriage and Wagon Manufacturers will find at this house all the materials they may require in their line of business, at the lowest prices, and on accommodating terms, such as Axles, Springs, Bolts, Hubs, Spokes, Felloes, Shafts, Bows, &c. Also, all kinds of Patent Leathers, Cloths, Damasks, Silks, Carpets, Threads, Tacks, Curled Hair, Moss, Varnishes, Japan, &c. These goods are selected with care, and with the express end in view of giving satisfaction to the public.

SILVER AND BRASS PLATING DONE.

☞ Orders through the mail, when accompanied with the cash, or satisfactory references, will receive immediate attention.

F. S. DRISCOLL & CO.,

Manufacturers of and Dealers in

Carriage Hardware & Trimmings

PAINTS, OILS, BRUSHES, &c.,

94 BOWERY, N. Y.

In addition to our usual assortment of Carriage Furnishing Goods, we have recently added a full and complete stock of Choice Colors for Carriage-makers' use. Also, Oil, Turpentine, Japan, Varnish, English Varnish, &c. As this is a new feature in our business, and well calculated to advance the interests of our customers, we invite all requiring articles in our line to give us a call. Among our paint stock we include

Patent Black, Chrome Green, Quaker Green, Lampblack, Emerald Green, Chrome Yellow, Prussian Blue, Paris Blue, Dutch Pink.

A variety of shades of LAKE, French, English, and German; FLAKE WHITE, and all other colors required for carriage-work.

N. B.—Our assortment of Carriage Hardware and Trimmings is as good as can be found at any establishment in the city; and our prices will continue as reasonable as heretofore.

ARNOLD STIVERS,

Manufacturer of

Carriage Spring Locks,

German Silver, Brass and Plated Bands, Shaft Tips, Yoke Tips, Pole Tips, &c., &c.; also, Brass and Composition Castings.

No. 12 MECHANIC STREET,

NEWARK, N. J.

The Best Lining Nail in Use,

IS THE PATENT BASSELAIN.

It is made by the IVES & PARDEE Manufac'g Co.

To be had of all Dealers in Carriage Trimmings.

ODOMETER BANDS,

FOR MEASURING DISTANCES PASSED OVER BY VEHICLES.

Patented by A. T. HOWARD, July 3, 1860.

For NEATNESS, ACCURACY, AND DURABILITY, they are UNEQUALED by any in the market.

For descriptive circular, &c., address, **IVES & PARDEE MF'G CO.,**
MOUNT CARMEL, CONN.

For Sale in New York City by
SWIFT, SEAMAN & CO., 52 Warren and 122 Chambers Street.
Also by WOOD BROTHERS, No. 396 Broadway.

AMERICAN DANAMORA IRON COMPANY

WAREHOUSE, No. 16 BEEKMAN STREET, New York.

MANUFACTORY, MOTT HAVEN, N. Y.

Attention is respectfully called to the FORGED CARRIAGE BOLTS and NUTS, manufactured by the above-mentioned Company; and in doing so, it is claimed that their productions are superior in material, make, style, and finish, to any others in the market, and which they are now prepared to supply in any quantity. Before entering upon this manufacture, the Company had the wants of many of the most prominent Carriage Makers in New York and vicinity fully canvassed; and in carrying out its manufacture, the main object has been to produce goods that will meet their wants, in which the Company flatter themselves they have been very successful.

For a strong and desirable Bolt or Nut, the first requisite is a strong and durable Iron, of even quality, AND NOT SO SOFT AS TO BE LIABLE TO HAVE THE THREAD STRIP, under any strain; no Iron yet made has a better reputation for this than the Norway or Swedish Iron; and as this Company manufacture their own Iron, from ore identically like the ore from which the famous Danamora Iron of Sweden is made, and by a process which produces a very strong and tenacious Iron, more even in quality than any other now known; and as no expense has been spared in providing skillful workmen with the most approved appliances for producing and finishing a FORGED BOLT AND FORGED NUT,—the Company feel confident in the assumption above made.

The peculiar properties claimed for their Bolts and Nuts, are as follows, viz.:

First.—That they are made of a superior quality of tough Iron, sufficiently hard to prevent the thread of the Bolt from stripping, thus avoiding the too common error of selecting too SOFT an IRON. *Second.*—That the thread of the Bolts is cut in exact mathematical proportion to the size of Iron from which it is made, and is of a shape that will stand the greatest strain. *Third.*—That every NUT WILL FIT ANY BOLT of the size for which it is intended, a feature very much desired by those who use them. *Fourth.*—The goods, instead of being put in bundles as usual, are put up in strong paper boxes, each label being stamped with the above trade mark of the Company, to counterfeit which is BY LAW a FELONY, and any imitation thereof will be prosecuted by this Company.

The LIST PRICES of this Company are the same as PHILADELPHIA; and the Discount will be AS LIBERAL as any house in the trade, for the same quality of goods.

Orders are solicited for these goods, from CARRIAGE BUILDERS, as well as DEALERS, and to that end they are invited to examine and test the same at the Warehouse of the Company.

WILLIAM RIDER, President.

The Largest Band Manufactory in the United States.

HANNAH & STORM,

423, 425, and 427 Main Street, Poughkeepsie, N. Y.

OFFICE in NEW YORK, at OLIVER, HANNAH & CO., 104 *JOHN STREET, directly opposite Cliff Street, where a stock of our Spokes, Spindles, Bands, &c., may be found.*

Sole Manufacturers of the Patent Champion Band, for all kinds of Axles,

To which they would respectfully call the attention of Dealers. It having received the decided approval of practical Carriage Builders, as a substitute for and a very great improvement on the ordinary Screw-Front Band.

We are also Manufacturing an endless variety of other styles of Bands, among which we would enumerate—

6	Different	Patterns	of Screw Bands.
7	"	"	Philadelphia Bands.
12	"	"	Open or Rim "
15 to 20	"	"	Other Styles, both Brass and Silver.

Also, 7 different patterns of Close Plated.

☞ Orders respectfully solicited, and attended to with care and dispatch.

HICKORY SPOKE FACTORY, POUGHKEEPSIE, N. Y.

ESTABLISHED 1855.

Purchasers of Hickory Spokes in want of a first-quality article, manufactured from Seasoned Timber, are respectfully informed that the subscribers have a Splendid Stock on hand and are constantly manufacturing on Blanchard Machines, all the different sizes, and are prepared to fill orders promptly. ☞ Orders solicited.

HANNAH & STORM.

CARY & YOUNG,

Coach Lamp Manufacturers,

AND SILVER PLATERS,

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NEAR BOWERY, NEW YORK.

On hand, a large variety of the latest styles of Coach Lamps, Hub Bands, Pole Hooks, Top Props, Handles, Ornaments, Mouldings, Caleche Fixtures, Spring Barrels, Curtain Frames, Locks, Knobs, &c., &c.

Carriage Trimmings.

JOHN P. JUBE & CO.,

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Keep constantly on hand a large assortment of choice

Saddlery & Coach Hardware,

Together with a well-selected Stock of the most approved manufacturers' PATENT LEATHER, Japanned Curtain Cloth, warranted Steel Springs, Patent, Half Patent, and Plain Axles, Bolts of superior quality, Hubs, Spokes, Bent Rimbs, Shafts, Poles and Top Bows, Coach Varnish and Japan, Curled Hair, Moss, &c.

PATENT HOMOGENEOUS CAST STEEL,

FOR

Carriage Axles and Tires.

SHORTRIDGE, HOWELL & CO.

Patentees and Sole Manufacturers of Howell's Patent Homogeneous Cast Steel.

THIS STEEL IS THE ONLY SUITABLE MATERIAL FOR LIGHT AXLES AND TIRES, COMBINING THE TOUGHNESS OF IRON WITH TWICE ITS STRENGTH, AS HAS BEEN THOROUGHLY TESTED BY THE PRINCIPAL CARRIAGE MAKERS IN THE UNITED STATES.

Consumers are requested to observe that every bar is stamped "**Shortridge, Howell & Co.,**" as well as "**Homogeneous Cast Steel,**" as spurious imitations marked "Homogeneous," have been issued by other establishments.

It can be procured in lots to suit purchasers at the subscriber's store ONLY.

DUNCAN LITTLEJOHN, Agent,

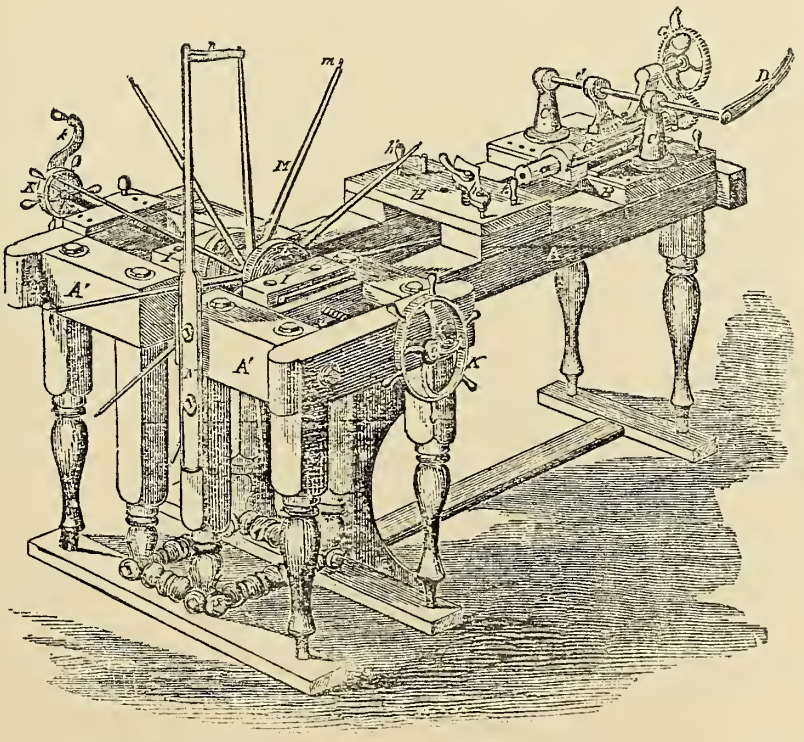
24 CLIFF STREET, NEW YORK.

THE GUARD WHEEL MACHINE.

(PATENTED OCTOBER 20th, 1857.)

This machine combines within itself all the parts requisite for the putting together and fitting into their proper places, TRUE and EXACT, all the different portions of a Carriage-wheel; and the operation is very simple. It is constructed upon an entirely different principle from any heretofore invented for the purpose, as it enables the operator to put the wheel together entire, without changing the location of the hub, thus entirely doing away with the numerous changes necessarily attending the ordinary way. They are intended to be worked by hand, but can be operated by power, with equal advantage and economy, if desired. For circulars, giving a more complete description, with over one hundred references to those now using these machines, address

C. H. GUARD, Troy, N. Y.



FROM THE SCIENTIFIC AMERICAN, APRIL 17, 1858.)

We have seen the hubs bored and mortised, the spokes driven in and tenoned, and the fellocs bored, of three sets of wheels of six large wheels and six small ones, in between six and seven hours, by one man, on these machines. We believe that it is one of the most useful machines for Carriage Builders and Wheelwrights ever yet produced.

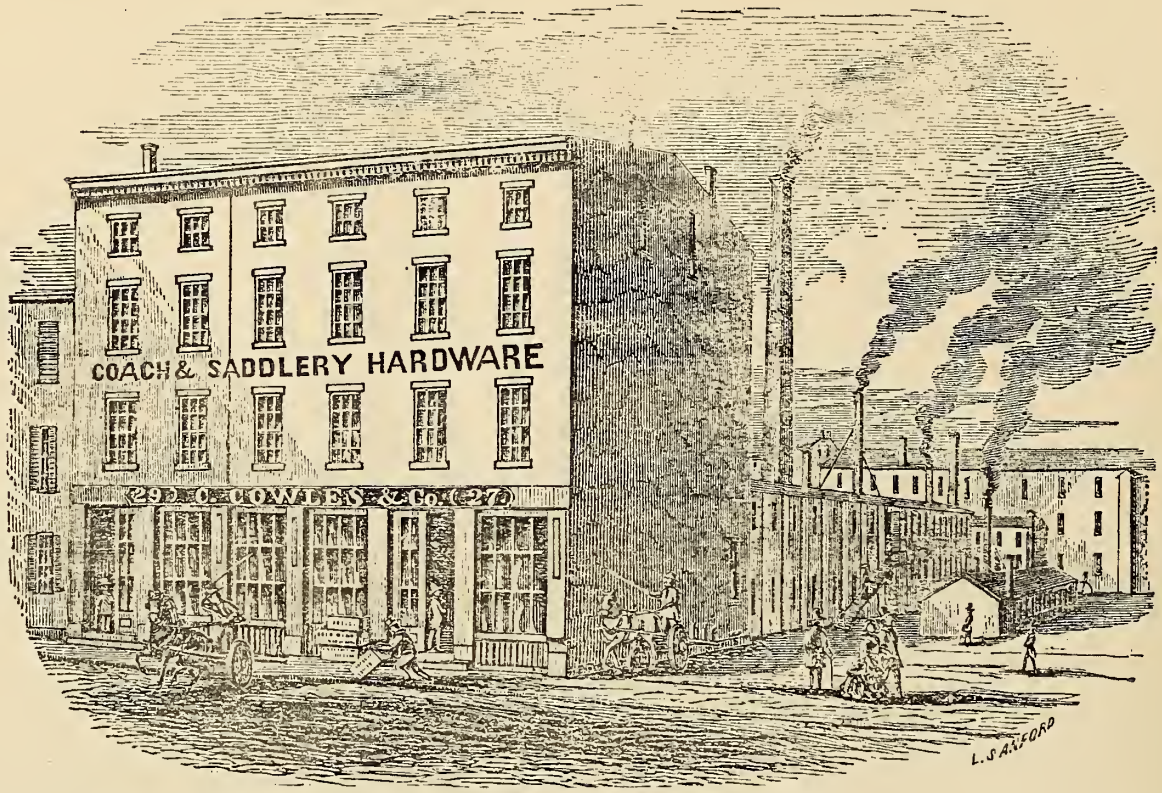
NEW YORK, April 20, 1858.

C. H. GUARD: Dear Sir,—After giving your Wheel Machine a thoroughly practical trial, we are convinced that we can make a wheel much superior to those made solely by hand, and at a great saving of cost. Its compactness of form, simplicity of construction, and the ease and precision with which it works, and the absolute certainty that the work is well done, must certainly make it a fixture in every carriage shop; to us it is invaluable.

Yours, truly, BREWSTER & CO., 372 and 374 Broome St.

C. H. GUARD, Original and Sole Inventor, Vender, and Patentee, Troy, N. Y.

MANUFACTURED AT TROY, N. Y., BY THE PATENTEE.



C. COWLES & CO.,

29 ORANGE ST., New Haven, Conn.,

EXTENSIVE MANUFACTURERS OF

COACH TRIMMINGS

AND

Furnishing Hardware.

Also, Manufacturers and Dealers in every description of Wood-Work, such as

CARVED AND PLAIN CARRIAGE PARTS,

Bent Stuffs, Seats, Bodies, Hubs and Spokes

They also manufacture a superior article of

NUTS, TURNED COLLARS, DASHES,

AND

COACH LAMPS,

And keep on hand a magnificent assortment of LACES, LEATHERS, CLOTHS, DAMASKS, SILKS, COTELINES, TASSELS, FRINGES, SPEAKING-TUBES, CORDS, TWINES, STUFFING MATERIALS,

And, in fact every variety of article in the trade, usually kept by

FIRST-CLASS FURNISHING HOUSES.

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Comprises the following articles, with many others,

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☞ A superior article of Spring Rollers, Curtain Frames of every pattern, Japanned Buttons of all colors
Solid and Filled Boot and Finishing Nails,
Knobs of all kinds, Lead Mouldings,
Buckles, and Ivory Articles of all kinds,
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POLE YOKES & CRABS,
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DOOR HANDLES,
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With many other articles in their line.

WOOD WORKS.

Their Bent Seat Rails, Turned Sticks, Frame Seats, Spring Bars, Spokes, Hubs, Felloes, Shafts, Bows, Poles, and everything in that line, are of the *Choicest Eastern Timber.*

A fine assortment of Carved Opera Boards on hand.

Address orders to

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DAVID DALZELL,

CARRIAGE & AXLE

MANUFACTURER,

South Egremont, Mass.,

Respectfully asks he attention of Carriage-makers to his

Superior Patent, Half Patent, Collins Taper, Improved Taper, and Screw

AXLES,

and particularly to the

Improved MAIL AXLE, with Oil-cup attached,

which keeps the Axle at all times in the finest running condition, with the smallest amount of trouble, simply by putting the oil in the cup once a week (pure Sperm), removing the wheel from the Axle only when the leather washers require to be renewed.

The liability to Heating and Sticking is wholly removed from these Axles, and they are undoubtedly the best Axle extant for running and carriage with ease and safety.

From over thirty years' experience in the use of Carriage Axles, the subscriber is competent to furnish an article perfect in its proportions and qualities.

From his numerous patrons he would respectfully submit but two names, which he feels will be sufficient to secure the confidence of all Builders of Carriages wanting a good Axle.

"After several years' use of the different styles of Axles, manufactured by David Dalzell, we cheerfully recommend them as worthy the confidence of the best class Carriage-builders.

"GEO. W. WATSON, Chestnut St., Phila.
JOHN R. LAWRENCE, 354 Broadway, N. Y."

Agents for the sale of the above Axles:

MESSRS. BOUTON & SMITH, 67 Bowery, N. Y.. Messrs. LAWRENCE, BRADLEY & PARDEE, New Haven, Conn., JESSE LEE, 37 South Fourth Street, Philadelphia.

Orders thankfully received and promptly executed, and all Axles warranted.

CARY & YOUNG,

No. 1 Mechanic St., Newark, N. J..

Manufacturers of

COACH LAMPS,

COACH MAKERS'

Hardware and Ornaments

Of every Description, consisting in part of

Coach Lamps, Pole Hooks

BANDS,

HANDLES, TOP PROPS,

MOULDING,

Caleche Fixtures,

Rosettes, Knobs, &c., &c.,

Plated Pashes and Side Handles.

Coach-Makers and Dealers will find our assortment of Lamps and Ornamental Trimmings unexcelled in the United States, for quality, variety, or style.

A CHART,

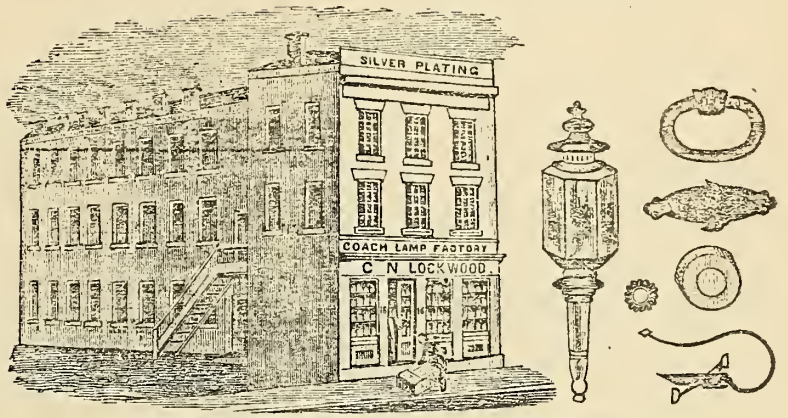
10¼ BY 13 INCHES,

with TWENTY-FOUR CUTS OF CARRIAGES, for Sale at 12 cents per copy, at this office. Ordered by mail, will be 15 cents in stamps.

The Best Lining Nail in Use,

IS THE PATENT BASSELAIN.

It is made by the IVES & PARDEE Manufac'g Co. To be had of all Dealers in Carriage Trimmings.



C. N. LOCKWOOD,

(LATE EAGLES & LOCKWOOD,)

Coach Lamp

MANUFACTURER

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16 Mechanic Street,

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The Largest Assortment in the United States,

Embracing over 190 different sizes and patterns of

COACH & BUGGY LAMPS,

Engine and Signal Lamps,

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CURTAIN FRAMES, DASHES,

RAILINGS, BRANCH IRONS,

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Constantly on hand, at Wholesale and Retail.

BRIDGEPORT BENDING WORKS.

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Manufacturers of BENT FELLOES, CARRIAGE BOWS, SHAFTS, POLES, AND ALL KINDS OF BENT CARRIAGE AND SLEIGH TIMBER. We have at our command the very best quality of Timber, and can fill orders on short notice, as we keep a heavy stock of Felloes, Bows, &c, constantly on hand.

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Orders will receive prompt personal attention, and all goods delivered or shipped in Newark or New York free of charge.

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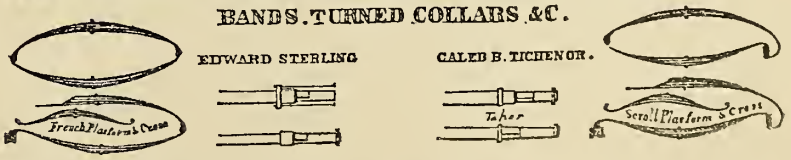
BANDS. TURNED COLLARS &C.



We respectfully solicit the patronage of those who are making first-class carriages.

We believe we have deservedly acquired the reputation of manufacturing the best articles in our line in the country.

Our Springs are made from the best ENGLISH SPRING STEEL (which is made expressly for us, from Swede's Iron), and are all thoroughly tested before they leave the Factory. Our Axles are of the best Salisbury Iron, and our Carriage Trimmings are made in the latest and most approved styles.

EDWARD STERLING, }
CALEB B. TICHENOR, }

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SWIFT, SEAMAN & CO.,

52 Warren and 122 Chambers Street, New York,

IMPORTERS AND MANUFACTURERS OF ALL KINDS OF

CARRIAGE AND SADDLERY HARDWARE.

A full assortment of finished Carriage Wood-Work. Also, Carriage Trimmings of all kinds.

WILLIAM TILDEN & NEPHEW,

Varnish Manufacturers,

115 NORFOLK STREET, NEW YORK,
45 VINE STREET, CINCINNATI, OHIO.

WITH A VIEW OF MEETING THE WANTS OF

COACHMAKERS AND CAR BUILDERS,

We have established a Manufactory exclusively for that branch of our business, and feel great confidence in offering them the following varieties of Coach Varnishes:

IMPERIAL WEARING BODY VARNISH.
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LIGHT SHADE COACH BODY VARNISH.
No. 1 COACH OR CARRIAGE VARNISH.
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BROWN JAPAN VARNISH.

NEW YORK, July 1, 1860.

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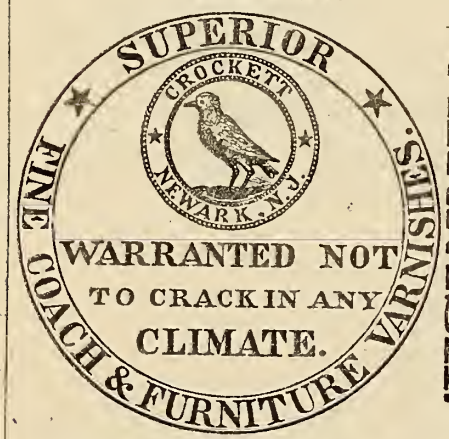

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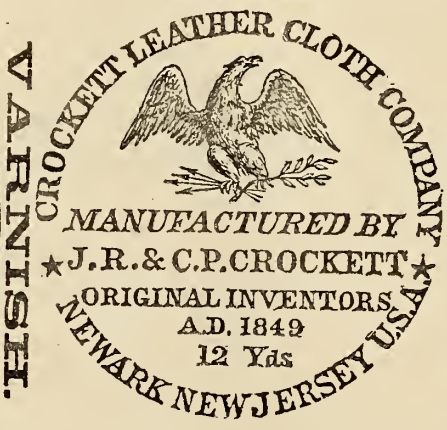

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J. R. & C. P. CROCKETT & CO.,

MANUFACTURERS OF

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GUARANTEED EQUAL TO THE BEST ENGLISH.

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Prices per doz. for re-cutting Bastard Files.	
Inch.	$ Cts.
14	2 50
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Coach-makers and others, can have their old Files re-cut equal to new, if sent, by express or otherwise, to Haverstraw (or New York, care of E. M. Stratton), and returned promptly; the expenses of transportation only being added to the annexed list.

And for all under 9 in., $1 37 per doz.

ALL KINDS OF

Carriage and Harness Mountings

Manufactured and for sale by

IVES & PARDEE MANF'G CO.,

Factory at Ives Station, Canal Railroad. } MOUNT CARMEL, CONN.

Write for Price List, inclosing your business card.

AMERICAN HUB COMPANY.

Manufacturers of Carriage, Wagon, Omnibus, Cart, and Truck Hubs, of every size and description, by their new PATENT MACHINERY, at prices to command the Market. Having abundant capital and superior facilities, and being located in a district of country where the best of Elm and Oak Timber abound, we are now prepared to supply (from our large stock on hand, or made to order) ELM AND OAK HUBS in any quantity (mortised or unmortised), to dealers and for exportation, at a low tariff of prices.

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F. S. DRISCOLL & CO.,

Manufacturers of and Dealers in

Carriage Hardware & Trimmings

PAINTS, OILS, BRUSHES, &c.,

94 BOWERY, N. Y.

In addition to our usual assortment of Carriage Furnishing Goods, we have recently added a full and complete stock of Choice Colors for Carriage-makers' use. Also, Oil, Turpentine, Japan, Varnish, English Varnish, &c. As this is a new feature in our business, and well calculated to advance the interests of our customers, we invite all requiring articles in our line to give us a call. Among our paint stock we include

Patent Black, Chrome Green, Quaker Green, Lampblack, Emerald Green, Chrome Yellow, Prussian Blue, Paris Blue, Dutch Pink.

A variety of shades of LAKE, French, English, and German; FLAKE WHITE, and all other colors required for carriage-work.

N. B.—Our assortment of Carriage Hardware and Trimmings is as good as can be found at any establishment in the city; and our prices will continue as reasonable as heretofore.

ARNOLD STIVERS,

Manufacturer of

Carriage Spring Locks,

German Silver, Brass and Plated Bands, Shaft Tips, Yoke Tips, Pole Tips, &c., &c.; also, Brass and Composition Castings.

No. 12 MECHANIC STREET,

NEWARK, N. J.

The Best Lining Nail in Use,

IS THE PATENT BASSELAIN.

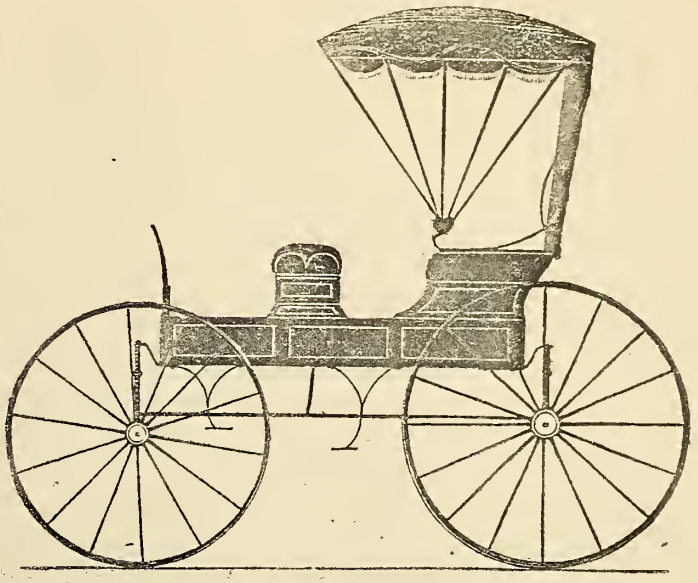
It is made by the IVES & PARDEE Manufac'g Co.

To be had of all Dealers in Carriage Trimmings.

BIRD'S IMPROVED

DUPLICATING

CARRIAGE SEAT.



THERE are a great many persons in our country who require, either for business or pleasure, at least two different kinds of carriages, but yet have not the means to buy and keep on hand so many. To obviate the difficulty, and embrace in one carriage, as far as practicable, the conveniences offered by two, many contrivances have been patented, and some of them have answered their purposes admirably, and had an extensive sale. All of them, however, more or less, have had one serious defect—they will *rattle* after a little while in use. This has been wholly remedied in WM. A. BIRD'S IMPROVED DUPLICATING, or SLIDING-SEAT CARRIAGE, patented the 17th day of April, 1860.

FIG. 1.

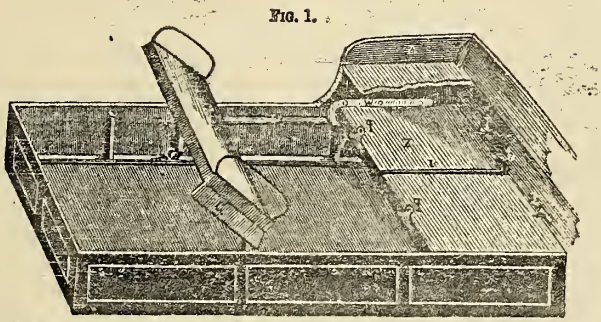


Figure 1 is a perspective view of the carriage body when in use, with duplicate seats, showing some of the irons in their places,

FIG. 2

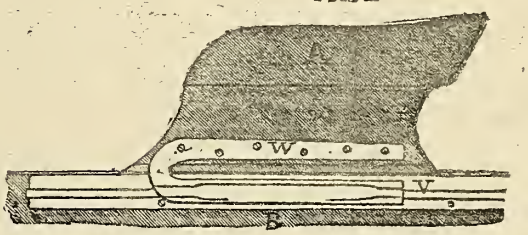


Figure 2 is a sectional view of the seat, with the supporting sliding irons in place.

FIG. 3

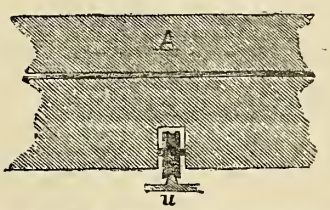


Figure 3 is a section from the middle of the back of the seat to show a supporting roller therein.

FIG 4

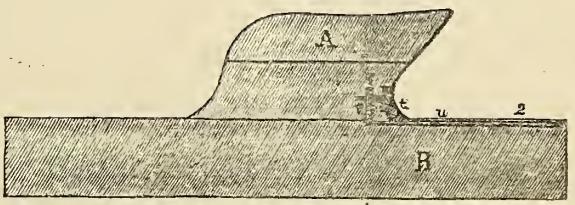


Figure 4, another sectional view of the seat, showing the steady pins in the eye pieces when but one seat is in use, also showing the position of the seats when the carriage is used as a single-seated conveyance.

FIG 5

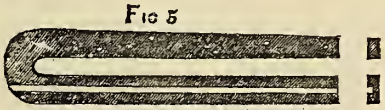


Figure 5 is a view of the irons attached to the inside lower edge of the seat, in which iron is the groove that sustains the seat and keeps it from defacing the plating on the edges of the carriage body.

FIG 6

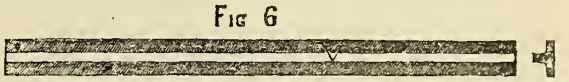


Figure 6 is the tongued iron secured to the inside upper edge of the carriage body, and on which figure 5 slides.

FIG.7

Figure 7 is a view of the steady-pin and eye-piece. ☞ Letter A refers to the seat which slides from over the deck-panel, Z, at the back end of the carriage-body B, and passes forward over the seat, C, when it is turned down as in figure 4. The seat, C, is hinged at its back to a bar, *y*, framed into the body of the carriage, and rests upon supports, X, at the front, which arrangement allows of its turning over and laying in the carriage-body under seat A, when that seat is drawn forwards. The iron, W, has its upper limb screwed fast to the inside lower edge of seat A, so that when its lower limb slides on the iron, V, the seat is thereby snpported clear of the edges of the carriage body, and clear of the deck panel, Z, so as not to deface the varnish and the plating when the seat is moved. Along the middle of the deck panel, Z, is placed a metal rod *n*, upon which runs the roller, *t*, which roller is secured in the back of the seat, A, to assist in the support and solidity of the seat; also, to facilitate its movement. To the inner lower part of the seat, A, two steady pins are affixed. The flat plate, *s*, with the projecting pin, *r*, are shown in figure 4, and the eye-piece, *g*, are shown in figure 1, in position, as secured to the front edges of the deck panel, Z. When the seat, A, is drawn forwards, the pins, *r*, enter the eyelets, *g*, and being tapering, the pins hold the seat so firmly in place as to save wear from clattering and from any unpleasant noise.

The advantages of the attachments constructed and arranged as described, are: a seat so firm, as strong, and as noiseless as one made immovably fast to the carriage, while the ornamental beauty of the body remains undefaced by the moving of the seat. The unavoidable rattling from what is termed, technically, lost motion, where many friction rollers are used, and which has caused the entire disuse of carriages having them, is by the new attachment entirely avoided. The peculiar form of the iron, W, makes it slightly elastic; just sufficient, when properly put on, to hold the roller *t*, tight down on the rod, *u*.

Persons wishing a body ready made, with this improvement, for trial before purchasing rights, can have one sent to them on the payment of $15, and should it not prove to be all that is claimed for it, the amount paid will be refunded. For shop, county, or state rights, to make and sell under this patent, apply to

WM. A. BIRD, Newark, New Jersey.

The best Wheels are made by P. Jones & Co., Newark, N. J.

ODOMETER BANDS,

FOR MEASURING DISTANCES PASSED OVER BY VEHICLES.

Patented by A. T. HOWARD, July 3, 1860.

For NEATNESS, ACCURACY, AND DURABILITY, they are UNEQUALED by any in the market.

For descriptive circular, &c., address, **IVES & PARDEE MF'G CO.,**
MOUNT CARMEL, CONN.

For Sale in New York City by
SWIFT, SEAMAN & CO., 52 Warren and 122 Chambers Street.
Also by WOOD BROTHERS, No. 396 Broadway.

AMERICAN DANAMORA IRON COMPANY

WAREHOUSE, No. 16 BEEKMAN STREET, New York.

MANUFACTORY, MOTT HAVEN, N. Y.

Attention is respectfully called to the FORGED CARRIAGE BOLTS and NUTS, manufactured by the aoove-mentioned Company; aud in doing so, it is claimed that their productions are superior in material, make, style, and finish, to any others in the market, and which they are now prepared to supply in any quantity. Before entering upon this manufacture, the Company had the wants of many of the most prominent Carriage Makers in New York and vicinity fully canvassed; and in carrying out its manufacture, the main object has been to produce goods that will meet their wants, in which the Company flatter themselves they have been very successful.

For a strong and desirable Bolt or Nut, the first requisite is a strong and durable Iron, of even quality, AND NOT SO SOFT AS TO BE LIABLE TO HAVE THE THREAD STRIP, under any strain; no Iron yet made has a better reputation for this than the Norway or Swedish Iron; and as this Company manufacture their own Iron, from ore identically like the ore from which the famous Danamora Iron of Sweden is made, and by a process which produces a very strong and tenacious Iron, more even in quality than any other now known; and as no expense has been spared in providing skillful workmen with the most approved appliances for producing and finishing a FORGED BOLT AND FORGED NUT,—the Company feel confident in the assumption above made.

The peculiar properties claimed for their Bolts and Nuts, are as follows, viz.:

First.—That they are made of a superior quality of tough Iron, sufficiently hard to prevent the thread of the Bolt from stripping, thus avoiding the too common error of selecting too SOFT an IRON. *Second.*—That the thread of the Bolts is cut in exact mathematical proportion to the size of Iron from which it is made, and is of a shape that will stand the greatest strain. *Third.*—That every NUT WILL FIT ANY BOLT of the size for which it is intended, a feature very much desired by those who use them. *Fourth.*—The goods, instead of being put in bundles as usual, are put up in strong paper boxes, each label being stamped with the above trade mark of the Company, to counterfeit which is BY LAW a FELONY, and any imitation thereof will be prosecuted by this Company.

The LIST PRICES of this Company are the same as PHILADELPHIA; and the Discount will be AS LIBERAL as any house in the trade, for the same quality of goods.

Orders are solicited for these goods, from CARRIAGE BUILDERS, as well as DEALERS, and to that end they are invited to examine and test the same at the Warehouse of the Company.

WILLIAM RIDER, President.

The Largest Band Manufactory in the United States.

HANNAH & STORM,

423, 425, and 427 Main Street, Poughkeepsie, N. Y.

OFFICE in NEW YORK, at OLIVER, HANNAH & CO., 104 *JOHN STREET, directly opposite Cliff Street, where a stock of our Spokes, Spindles, Bands, &c., may be found.*

Sole Manufacturers of the Patent Champion Band, for all kinds of Axles,

To which they would respectfully call the attention of Dealers. It having received the decided approval of practical Carriage Builders, as a substitute for and a very great improvement on the ordinary Screw-Front Band.

We are also Manufacturing an endless variety of other styles of Bands, among which we would enumerate—

6	Different	Patterns of	Screw Bands.
7	"	"	Philadelphia Bands.
12	"	"	Open or Rim "
15 to 20	"	"	Other Styles, both Brass and Silver.

Also, 7 different patterns of Close Plated.

☞ Orders respectfully solicited, and attended to with care and dispatch.

HICKORY SPOKE FACTORY, POUGHKEEPSIE, N. Y.

ESTABLISHED 1855.

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VOL. IV. PART XLIV.

THE

NEW YORK

COACH-MAKER'S MONTHLY

MAGAZINE,

DEVOTED TO THE

LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

SPECIMEN NUMBER.

E. M. STRATTON, EDITOR AND PROPRIETOR.

ASSISTED BY AN ABLE CORPS OF SCIENTIFIC AND LITERARY CONTRIBUTORS.

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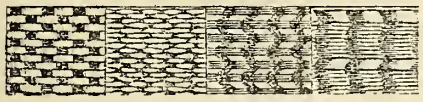

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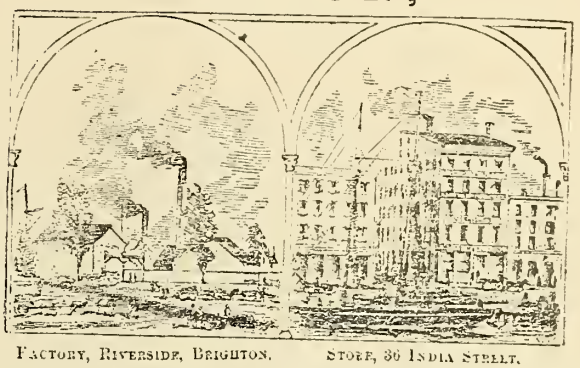

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This popular Magazine, published in New York city, was commenced in June, 1858, by the Proprietor, himself a practical coach-maker for 35 years; the past 23 in business for himself—was undertaken at the solicitation of several of the craft, who felt that they had not been suitably represented by the one formerly professing to be their organ. The superiority of the N. Y. COACH-MAKER'S MAGAZINE over its predecessor may be inferred, from the fact that one month after its appearance, the other ceased to be issued.

The success of the N. Y. publication, during its first volume, now completed, has encouraged the publisher to enter into such arrangements for the coming volume as will insure variety and interest. Our engagements abroad embrace one agent in France, one in England, and two in Prussia, who will keep us posted on anything new in the business of Coach-making. At home, we have in our list the best talent in the trade, in evidence of which, see our first volume. We intend to present, during the second year, several new features, among which will be several valuable articles on the construction of carriage-bodies. The craft may rest assured that the editor will spare no pains to make this Magazine worthy of their support.

PLAN OF THE WORK.

OUR MONTHLY DESIGNS consist of three PRACTICAL WORKING DRAFTS, contributed by first-class designers and reporters of Style, both in this country and in Europe, and drawn correctly to scale. To enlarge the field of design, and to give variety and tone to the work, we (as a general thing) give one foreign, one fashionable, and one original or improved design, and an additional stitching, ornament, or portrait plate in each number. To accomplish this, we have secured Paris, London, and Berlin Correspondence; also some of the most eminent designers in this country.

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THE BUSINESS DEPARTMENT contains matter of a purely business character, such as Patent Illustrations, Notices, Items, &c. In this, we speak of inventions as they are represented, and of business in the light best calculated to bring our advertisers into notice. As this Magazine is circulated in every State of the Union, the Canadas and Europe, it furnishes the best medium in existence for the inventor to reach Coach-makers with his advertisement.

THE TRIMMING ROOM will be open to contributions, but contain prospective cuts only when some new and practical design is discovered, or some new fashion is introduced; but will contain hints and suggestions from the most eminent workmen, East and West, with diagrams, scientific rules, &c., illustrated and explained. A quarterly Stitching Plate will be given.

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1009 CHESTNUT STREET, PHILADELPHIA, 10th Nov., 1858.

This is to certify that I have always found Mr. E. M. STRATTON, Publisher of the "NEW YORK COACH-MAKER'S MAGAZINE," a gentleman of worth and reliability, and cheerfully recommend him to the notice of all engaged in the Carriage business. WILLIAM D. ROGERS.

SALEM, OHIO, March 4, 1859.

Having been personally acquainted with Mr. E. M. STRATTON for several years past, and knowing the high reputation enjoyed by him as a responsible man, a practical Coach-maker, an accomplished scholar and a gentleman, I take pleasure in saying that I have full confidence in his ability to make the "COACH-MAKER'S MAGAZINE" all the craft may desire. I therefore cheerfully recommend Mr. STRATTON as worthy of the patronage of the Coach-making public. ALLEN S. PELCH.

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SHORTRIDGE, HOWELL & CO.

Patentees and Sole Manufacturers of Howell's Patent Homogeneous Cast Steel.

THIS STEEL IS THE ONLY SUITABLE MATERIAL FOR LIGHT AXLES AND TIRES, COMBINING THE TOUGHNESS OF IRON WITH TWICE ITS STRENGTH, AS HAS BEEN THOROUGHLY TESTED BY THE PRINCIPAL CARRIAGE MAKERS IN THE UNITED STATES.

Consumers are requested to observe that every bar is stamped "Shortridge, Howell & Co.," as well as "Homogeneous Cast Steel," as spurious imitations marked "Homogeneous," have been issued by other establishments.

It can be procured in lots to suit purchasers at the subscriber's store ONLY.

DUNCAN LITTLEJOHN, Agent,

24 CLIFF STREET, NEW YORK.

The best Wheels are made by P. Jones & Co., Newark, N. J.

EDW. TWITCHELL] # H. D. SMITH & CO., [H. D. SMITH.

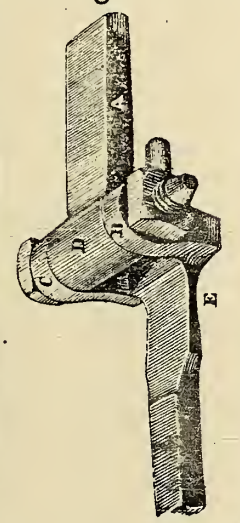
PLANTSVILLE, CONN.,

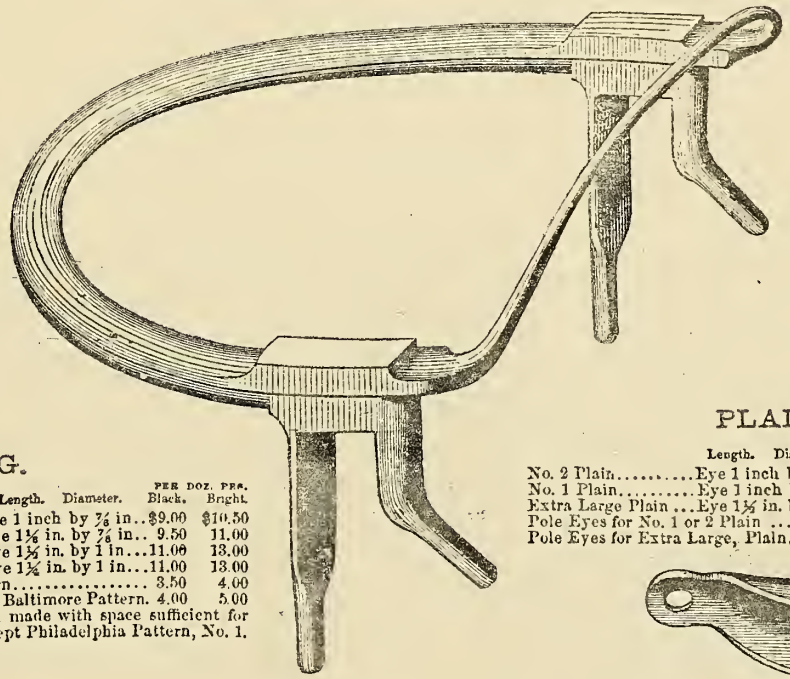
MANUFACTURERS OF

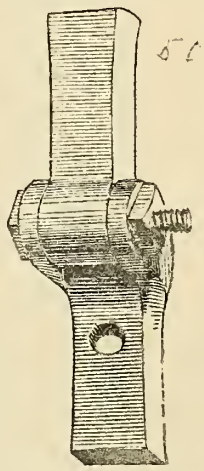
Carriage-Shaft Couplings, Wrought Slat-Irons, New style of Carriage Clips, New style Perch Coupling.

NEW YORK STYLE FIFTH-WHEELS.

With Solid Clips of Norway Iron.







CLIP COUPLING.

	Length.	Diameter.	PER DOZ. PRS. Black.	Bright.
New York Pattern	Eye 1 inch by	⅞ in..	$9.00	$10.50
Baltimore Pattern	Eye 1⅛ in. by	⅞ in..	9.50	11.00
Philadelphia Pattern, No. 1	Eye 1½ in. by	1 in...	11.00	13.00
Philadelphia Pattern, No. 2	Eye 1¼ in. by	1 in...	11.00	13.00
Pole Eyes for New York Pattern			3.50	4.00
Pole Eyes for Philadelphia and Baltimore Pattern			4.00	5.00

The above Couplings are all made with space sufficient for Chapman's Rubber Blocks, except Philadelphia Pattern, No. 1.

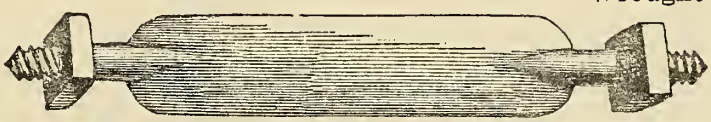
PLAIN COUPLING.

	Length.	Diameter.	PER DOZ. PRS. Black.	Bright.
No. 2 Plain	Eye 1 inch by	⅞ inch.	$7.00	$8.25
No. 1 Plain	Eye 1 inch by	1 inch.	7.50	8.75
Extra Large Plain	Eye 1½ in. by	1½ in.	11.00	13.00
Pole Eyes for No. 1 or 2 Plain			3.50	4.00
Pole Eyes for Extra Large, Plain			5.00	6.00

SMITH'S PATTERN

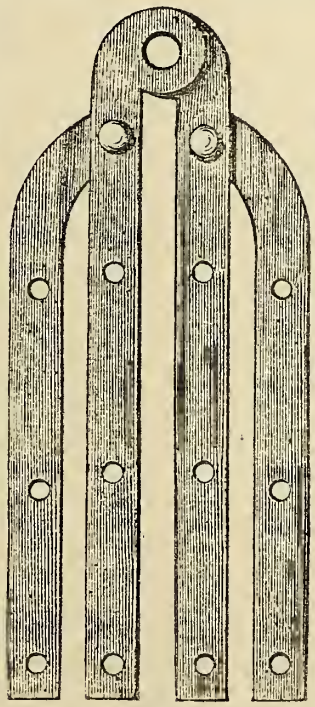
Wrought Iron Felloe-Plates.

These Plates are *stronger, lighter, handsomer* and *cheaper* than the Malleable Felloe-Plates.



SMITH'S NEW STYLE CARRIAGE CLIPS.

No. 0, Flat part 2½ in. long	64 cts. per doz.	No. 3, Flat part 4 in. long	70 cts. per doz
No. 1, Flat part 3 in. long	64 " "	No. 4, Flat part 4½ in. long	80 " "
No. 2, Flat part 3½ in. long	64 " "	No. 5, Flat part 5 in. long	90 " "



SMITH'S CELEBRATED IMPROVED

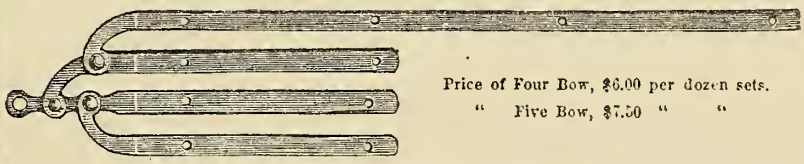
SLAT-IRONS,

For Carriage Bows.

Made of good wrought-iron.

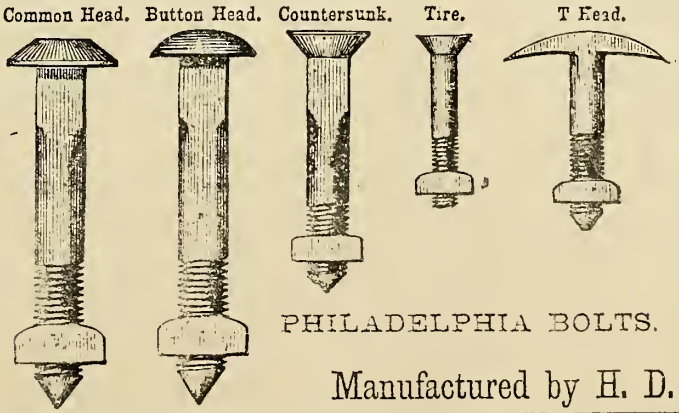
Price, $3 per dozen pairs.

Five Bow Slats, $4 per dozen pairs.



Price of Four Bow, $6.00 per dozen sets.
" Five Bow, $7.50 " "

PHILADELPHIA PATTERN FORGED SLAT-IRON.



PHILADELPHIA BOLTS.

BAND SETTER.

A Machine for Setting Plated Bands on Hubs of Carriage-wheels.

Price, $12.00 per dozen.

Manufactured by H. D. SMITH & CO.

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